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UNIVERSITY OF ILLINOIS

# Brown University

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## ANNUAL ANNOUNCEMENT

### Academic Year

**1893-'94**



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1893/94-1905/06

## BROWN UNIVERSITY

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### ANNUAL ANNOUNCEMENT, ACADEMIC YEAR 1893-'94

The Academic Year begins Wednesday, September 20, with Chapel Service at 8.40 a. m. Immediately after this service the President will deliver an address before the University. At the close of this the classes will begin their sessions according to the Schedule.

Students must report at the Registrar's office on Monday, September 18, or Tuesday, September 19, for registration.

Students delinquent in the studies of preceding years will report at the Registrar's Office on Monday morning, September 18, at 9 a. m., where will be posted the Schedule of Delinquent Examinations for Monday and Tuesday. Attention is called to the rules governing such examinations given on page 148 of the Catalogue for 1892-'93.

Examinations for admission to the Freshman Class will be held in Rhode Island Hall, beginning Monday, September 18, at 9 a. m.

Examinations for admission to the Sophomore, Junior, and Senior Classes will be held on Monday and Tuesday, September 18 and 19. Candidates are to report at the Registrar's Office on Monday at 9 a. m.

The following members have been added to the Teaching Force:

**GEORGE W. FIELD, PH. D.**

*Associate Professor of Cellular Biology.*

**HENRY L. KOOPMAN, A. M.**

*Librarian.*

**REV. JOHN B. FORBUSH, PH. D.**

*Instructor in Comparative Religion.*

**ALBERT DEF. PALMER, A. M.**

*Instructor in Physics.*

**WINTHROP J. V. OSTERHOUT, A. B.**

*Instructor in Botany.*

**JAMES Q. DEALEY, A. M.**

*Instructor in English.*

**IRVING L. FOSTER, A. B.**

*Instructor in the Romance Languages.*

**FREDERIC P. GORHAM, B. P.**

*Instructor in Biology.*

## GRADUATE INSTRUCTION

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the Degrees of Master of Arts and Doctor of Philosophy.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., B. P., B. S., M. E., and C. E., will be in the main as stated in the Catalogue for 1892-'93. In the following paragraphs mention is made only of those departments in which changes occur.

### Philosophy

**THE PRESIDENT, PROFESSORS SETH AND DELABARRE, DR. FORBUSH**

The only essential changes from the programme announced in the Catalogue, pp. 54, 55, will be as follows:

Philosophy 23. A new course in Theoretical Ethics will be offered by Professor Seth in the second term, elective for Seniors. The class will meet twice a week, and the President's Course 17, Conversations in Casuistry, may be counted with this as one three-hour course. The subject of study will be the Virtues and Moral Institutions, with special reference to the Ethical Basis of the State.

Philosophy 24. In the third term, Professor Seth will offer a new course in the Philosophy of Religion, dealing with the contents of the religious and more particularly the Christian consciousness, in the light of its development. This will also be a two-hour course, elective for Seniors, and the President hopes to offer, in connection with it, a new one-hour course, Philosophy 25, of Instruction in the Christian Religion.

Philosophy 26. Dr. Forbush will give during the second term a three-hour course in Comparative Religion, elective for Juniors, Seniors, and graduate students.

See, further, Astronomy 7.

### Greek Literature and History

**PROFESSOR MANATT, DR. NEWHALL, AND MR. GREENE**

Professor Manatt will begin his duties as head of the Greek department in September.

The courses named below will take the place of those from 4 to 13, inclusive, in the catalogue.

14. *Plato*: The Last Days of Socrates, as dramatized in the Euthyphron, Apology, Crito, and Phædo. History of the Literature in outline. Three hours. First Term. Elective for Sophomores.

15. *Homer*: Odyssey. Mythology of the Greeks. The Homeric question. Epic Poetry at large. Three hours. Second Term. Elective for Sophomores.

16. *Æschylus and Sophocles*: Selected Plays. History of the Drama. The Greek Theatre. Three hours. Third Term. Elective for Sophomores.

17, 18, 19. *The Epic and Lyric Poets, or the Historians*, with auxiliary courses in (I) The Constitutional History of Athens (Aristotle), and (II) The Public Life of the Greeks. Three hours. Through the year. Elective for Juniors and Seniors.

20, 21, 22. *The Dramatists, or the Orators*, with auxiliary courses in (I) The Topography and Monuments of Greece (Pausanias), and (II) Introduction to Epigraphy and Palæography. Three hours. Through the year. Elective for Juniors and Seniors.

## The Fine Arts

PROFESSOR POLAND

Professor Poland desires to make the following announcement in regard to the courses in the Fine Arts:

Courses 1, 2, and 3 will be given, practically, in accordance with the outlines sketched on page 60 of the catalogue for 1892-'93.

Course 4 will be the study of Early Christian, Byzantine, Arabian, and Oriental Art. Three hours. First Term. Elective for Juniors, Seniors, and graduates.

Course 5 will be the study of Romanesque and Gothic Art. Three hours. Second Term. Elective for Juniors, Seniors, and graduates.

Course 6 will be the study of the art of the Renaissance and of modern art. Three hours. Third Term. Elective for Juniors, Seniors, and graduates.

Courses 4, 5, and 6 may be taken independently of each other and of Courses 1, 2, and 3. Instruction will be given by text-books and by lectures.

In all the courses the means of illustration will be greatly enlarged. Many new casts have been added to the Museum of Classical Archæology. These casts and the large collection of lantern-slides will be used in connection with the lectures.

## Rhetoric and Oratory

PROFESSOR SEARS AND MR. BRINK

During the third term there will be offered, in place of Rhetoric 12, the following courses:

Rhetoric 13, a one-hour course in theme-writing, elective for Juniors.

Rhetoric 14, a one-hour course in thesis-writing, elective for Seniors and graduate students.

## English Literature and Language

PROFESSORS MANLY AND BRONSON

All the work in this department is now elective. In place of the courses formerly required of Juniors, the following will be offered:

27, 28. *Chaucer*. Three hours. First and Second Terms. Elective for Sophomores and Juniors.

PROFESSOR MANLY

29. *Spenser*, with a survey of English poetry between Chaucer and Spenser. Three hours. Third Term. Elective for Sophomores and Juniors.

PROFESSOR BRONSON

Courses 4, 5, 6 (Shakspere) may be taken two years in succession.

The course in American Literature will be extended to two terms, the Second and Third. Open to students who have passed in two courses in literature or in Course 7.

The subjects for study in the English Seminary will be as follows: First Term, History of English Literary Criticism; Second Term, English Lyric Poets of the Age of Charles I; Third Term, English Essayists. Membership will be limited to eight. If more than eight should elect the course, preference will be given first to graduates, second to undergraduates in order of scholarship in English. Since the membership is necessarily limited, students beginning the course will be expected to continue it through the year. Open to graduate students, and to undergraduates who have passed in three three-hour courses in literature. The time of meeting will be arranged to suit the convenience of the members.

## History

**PROFESSORS JAMESON AND MUNRO**

History 13 will be given during the first and second terms.

History 12 will be given during the third term, and will cover English History from the Conquest to Magna Charta.

## Political and Social Science

**PROFESSORS WILSON AND JAMESON**

The following new courses will be offered in this department:

*Political Science 5. Development of Political Theory.* Lectures and exercises. Three hours. First Term. Elective for graduate students and for those who have completed Courses 1, 2, and 3, or 1, 2, and 4.

*Political Science 6. Roman Law.* Three hours. Second Term. Elective as in Political Science 5.

*Social Science 4. Social Philosophy.* Lectures and exercises. Three hours. Third Term. Elective for graduate students and for those who have completed Social Science 1, 2, and 3.

## Political Economy

**PROFESSOR GARDNER**

In place of Course 7 there will be offered during the second term the following: Political Economy 6. Money and Banking. A discussion of the theory of money and credit, with a description of existing systems.

The subject of Course 5 will be The History of Political Economy.

## Pure Mathematics

**PROFESSORS CLARKE AND DAVIS, DR. MANNING, AND MR. BURNHAM**

Professor Davis will resume his duties in September, conducting the courses noted in the catalogue. Course 17 will be given during the third term, taking up chiefly the study of Integrals and of Functions defined by Integrals.

Mathematics 18, 19, 20. Dr. Manning will offer to graduate students, during the coming year, a three-hour course dealing chiefly with

**Modern Algebra, Higher Plane Curves, Surfaces; following Salmon, Clebsch, and Darboux.**

### **Applied Mathematics**

**PROFESSORS CLARKE AND RANDALL, MESSRS. BROWNELL AND BURNHAM**

*Mechanics* 6, 7, 8. Mechanics of Engineering. Three hours. Through the year. Elective for students who have taken Pure Mathematics 9, 10, 12. This course will be given in place of Mechanics 3, 4, as stated in the Catalogue.

*Civil Engineering.* The field-work in Civil Engineering 1, 2, 3 will be arranged in two-hour or four-hour exercises in order to avoid conflicts with other work.

The field-work in Civil Engineering 4, 5, and 6, 7, 8 must consist of one four-hour exercise each week, occupying an entire afternoon. If necessary the class in Civil Engineering 4, 5 will work on Saturday afternoons; that in Civil Engineering 6, 7, 8 on Wednesday afternoons.

If possible the work in Course 5 during the first term will be entirely in Hydrographic Surveying.

*Kinematics.* Elementary principles of mechanism. Elective for those who have taken Drawing 5 and 6 or 17 and 18.

### **Astronomy**

**PROFESSOR UPTON**

In the Department of Astronomy a new course will be offered the third term, upon the principles of *Scientific Method*. It will be called Astronomy 7, and will take the place of Meteorology, for the year 1893-'94. The course will consist of a series of lectures upon the philosophy of the Inductive and Deductive Methods of investigation, especially as they are used in the physical sciences. It will be open to Juniors and Seniors.

### **Comparative Anatomy**

**PROFESSORS BUMPUS AND FIELD, AND MR. GORHAM**

A course of instruction in Cellular Biology will be given during the coming year, the details of which have not yet been arranged.

## Botany

PROFESSOR BAILEY AND MR. OSTERHOUT

7, 8, 9. A new course will be offered in this department, dealing particularly with Cryptogamic Botany. Three hours. Through the year. Elective for Juniors and Seniors.

## Time Schedule

The studies for the Fall Term will be divided into ten groups as follows:

Group 1, nine A. M. on Monday, Wednesday, and Friday. Philosophy 8, Rhetoric 2 (1st) (3d), Philosophy 2 (1st), History 1 (2d), German 7, German 1 (2d) (4th).

Group 2, nine A. M. on Tuesday, Thursday, and Saturday. Rhetoric 2 (2d) (4th), Philosophy 2 (2d), History 1 (1st), German 1 (1st) (3d).

Group 3, ten A. M. on Monday, Wednesday, and Thursday. Philosophy 11, Greek 14, Fine Arts 1, History 4, Political Economy 4, Mathematics 13, Drawing 7, Chemistry 1 (1st), Physics 1.

Group 4, ten A. M. on Tuesday, Friday, and Saturday. Latin 7, Oriental History 1, English 12, Drawing 10, Chemistry 1 (2d), Comparative Anatomy 3, Italian 1, Rhetoric 10, German 4 (1st).

Group 5, eleven A. M. on Monday, Tuesday, and Thursday. Greek 20, Greek 17, Social Science 1, German 16, Mechanics 6, Drawing 1, Chemistry 7, Spanish 4, Sophomore Military Drill.

Group 6, eleven A. M. on Wednesday, Friday, and Saturday. German 4 (1st), Philosophy 5, Italian 4, History 7, English 4, Mathematics 15, Mechanics 1, Chemistry 4, Drawing 16.

Group 7, twelve M. on Monday, Wednesday, and Friday. Latin 4, English 18, French 7, Drawing 1, Chemistry 7, Political Science 1, Mathematics 9, Botany 7.

Group 8, twelve M. on Tuesday and Thursday, 2 P. M. on Friday. Political Science 5, English 7, Civil Engineering 1, Geology 1, Botany 4, Spanish 1, Chemistry 4, Fine Arts 4.

Group 9, two P. M. on Monday, Tuesday, and Thursday. Philosophy 4, Political Economy 1, Civil Engineering 5, Botany 1 (Soph.), English 27, French A, Drawing 15.

Group 10, three P. M. on Tuesday, Thursday, and Friday. Hebrew 1, French 4, Astronomy 1, Civil Engineering 6, Physiology 2, Agricultural Zoölogy.

In making elections students must not select more than one study in the same group. One-hour courses will be arranged with the instructors.

The arrangement of the Freshman courses will be announced at the beginning of the term.

No Sophomore will be allowed to elect a study in Group 5, as the required Military Drill will be placed there during the First and Third Terms, and Gymnasium Work during the Second Term.

Freshman Military Drill will occur at ten o'clock on Mondays and Thursdays, and at twelve o'clock on Saturdays.

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*Students should give careful attention to the following statements:*

The elective lists for the Fall Term are enclosed with this Circular. Students must make their elections and return the lists to the Registrar's Office on or before Wednesday, September 13. Students cannot any longer elect courses in any of the Laboratories (Chemistry, Physics, Botany, Zoölogy, Physiology, or Experimental Psychology), the time for these elections having elapsed. Physics 1, however, may be elected.

All who desire to take Honor Courses during the First Term must make application in writing, countersigned by the Professor, at the Registrar's Office, on or before October 15, 1893.

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# BROWN UNIVERSITY

## ANNUAL ANNOUNCEMENT

ACADEMIC YEAR

1894-95

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# BROWN UNIVERSITY

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ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1894-95

The Academic Year begins Wednesday, September 19, with Chapel Service at 8.40 A. M. Immediately after this service the President will deliver an address before the University. At the close of this, the classes will begin their sessions according to the Schedule.

Students report at the Registrar's office on Monday, September 17, or Tuesday, September 18, for registration. All students registering after Wednesday, September 19, will be charged a fee of five dollars each.

Students delinquent in the studies of preceding years will report at the Registrar's office on Monday morning, September 17, at 9 A. M., where will be posted the Schedule of Delinquent Examinations for Monday and Tuesday. Attention is called to the rules governing such examinations given on page 159 of the Catalogue for 1893-94. Students absent from these delinquent examinations will be charged a fee of two dollars each for each subsequent examination.

Examinations for admission to the Freshman Class will be held in Rhode Island Hall, beginning Monday September 17, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 17 and 18. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

The following changes and additions occur in the Faculty:

Professor Davis has received the degree of LL. D. Associate Professor Seth, now D. Sc., has been appointed Professor of Philosophy and Romeo Elton Professor of Natural Theology. Mr. Everett is now Associate Professor of Philosophy, but will this year be at the head of the Latin department during the absence of Professor Harkness in Europe. A. C. Crowell, Ph. D., has been made Assistant Professor of the Germanic Languages and Literatures, and Dr. Scott Associate Professor of Germanic Philology and Scandinavian.

E. A. Wilcox, A. B., has been appointed Instructor in Elementary Law; T. F. Green, LL. B., Instructor in Roman Law; and N. M. Isham, A. M., Instructor in Architecture.

E. C. Burnett, A. B., of the Class of 1890, becomes Instructor in Mathematics, A. T. Swift, A. M., in French, A. W. Hinds, A. M., in Greek, A. C. Ely, A. B., in German.

The following have also been appointed Instructors or Docents in the departments named: A. Meiklejohn, A. B., in Latin; H. M. Barry, A. B., C. M. Poor, A. M., E. F. Gamwell, A. B., A. B. Morton, A. B., J. S. Shippee, A. B., A. E. Thomas, A. B. and T. Crosby, Jr., B. P., in English; M. M. Fogg, Jr., A. B., in Elocution; W. W. Moss, A. B., in Mathematics. Mr. J. F. Collins succeeds Mr. Bennett as Curator of the Herbaria.

## GRADUATE INSTRUCTION

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the degrees of Master of Arts and Doctor of Philosophy. Further particulars may be found in the current Catalogue.

For the Department of Germanic Languages and Literatures there is a special circular, to be had on application to the Registrar or to Professor Crowell.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., B. P., B. S., M. E., and C. E., will be in the main as stated in the Catalogue for 1893-94. In the following paragraphs mention is made only of those departments in which changes occur.

### Philosophy

#### THE PRESIDENT, PROFESSORS SETH, DELABARRE AND EVERETT

The only essential changes from the programme announced in the Catalogue, p. 55, will be as follows:

Philosophy 14. Philosophical Seminary. The subject of study for 1894-95 will be Kant's Critique of Pure Reason in its relation to the Critique of Practical Reason.

Philosophy 20, 21, 22. Psychology. Advanced course. Seminary for the discussion of important and interesting questions in Psychology. First Term: The Fundamental Principles of Psychology. Second Term: Abnormal and Unusual States of Consciousness. Third Term: Subject undetermined. Three hours. Elective for Seniors and graduates.

#### PROFESSOR DELABARRE

Philosophy 29, 30. Psychology. Advanced and original experimental work. One hour. First and Second Terms. Elective for Seniors and graduates who have passed in Course 4.

#### PROFESSOR DELABARRE

### Greek Literature and History

#### PROFESSOR MANATT, DR. NEWHALL, MESSRS. HINDS AND WIGHTMAN

During 1894-95, Greek 10, 11, 12 and 16, 17, 18 will take the place of Greek 7, 8, 9 and 13, 14, 15.

The following changes are to be noted :

The order of Sophomore studies is changed so that Course 6 is given the first term, and 4 and 5 follow.

Courses 10, 11, 12 may be combined with 21 as one continuous three-hour course. If two consecutive hours can be found for the Orators, a Seminary will be formed and the centre of work for the first term will be *Isaeus and Athenian Testimentary Law*.

In place of Course 19, the following new one is offered :

23, 24, 25. *Greek Philosophy. Plato and Aristotle.* A Saturday morning Seminary (two hours) for Seniors and graduates.

PROFESSOR MANATT AND DR. NEWHALL

In place of 22 :

26, 27, 28. Hellenistic and Modern Greek. First Term, The New Testament; Second Term, Introduction to the living language; Third Term, Contemporary Greek Literature. One hour. Open to all students who have passed in Courses 1, 2, 3.

DR. NEWHALL AND PROFESSOR MANATT

### Roman Literature and History

PROFESSORS HARKNESS AND EVERETT, MESSRS. GREENE  
AND MEIKLEJOHN

During the absence of Professor Harkness in Europe, the department will be under the charge of Professor Everett, who will carry on the Junior and Senior elective Course 11, 12, 13. Course 10, Private Life and Antiquities of Rome, will not be given as a separate course, but some of the subject matter will be embodied in Course 11, 12, 13.

### The Fine Arts

PROFESSOR POLAND AND MR. ISHAM

Changes will be made in this department as follows :

Course 1. This will correspond to the statement in the Catalogue but will also include the substance of the course numbered 2 in the Catalogue. First Term. Elective for Juniors and Seniors.

Course 2 will include the subjects treated in 1893-94 in Courses 4 and 5. Second Term. Elective for Juniors and Seniors.

Course 3 will correspond to the course numbered 6 in the last Catalogue, extending however only to the sixteenth century. Third Term. Elective for Juniors and Seniors.

The above courses may be taken independently of each other, but students are advised to elect all three.

Course 4. The History of Art in centuries subsequent to those treated in Course 3. Three hours. First Term. Elective for those who have taken the course numbered 6 in the Catalogue.

Course 5. *Pausaniae descriptio arcis Athenarum*, edited by Jahn & Michaelis. Special course in the study of the Acropolis of Athens. The original Greek text will be used. The subject is studied from the original sources, literary and monumental. Lectures, illustrations, etc. Second Term. Three hours. Elective for those who have passed in Course 1 as in Catalogue.

Course 6. Theory and Criticism of the Fine Arts. Aesthetics. Third Term. Three hours. Elective for those have passed in one of the foregoing courses.

Honor courses will be arranged for those prepared. Attendance on instruction of at least one hour per week will be required.

#### ARCHITECTURE

The following courses in Architecture will be given under the direction of Mr. Isham. During 1895-96 more courses will be added.

Drawing 2, 3, 4; 21, 22, 23; 24, 25, 26 see "Drawing."

Architecture 1, 2. Historic. The orders and their applications. Rendering in line and in washes. Three hours. Second and Third Terms. Elective for those who have passed in Drawing 7. These courses take the place of Drawing 13 and 14.

Architecture 3, 4, 5. Constructive. Plans, elevations, sections and details of buildings. Lectures, visits to buildings, etc. Three hours. Through the year. Elective for those who have passed Drawing 14.

Architecture 9, 10, 11. Historic. Drawing of historic examples. Greek, Roman and Byzantine work. Plans, elevations, etc. Lectures and text-books. Three hours. Through the year. Elective for those who have passed in Drawing 14, and who shall take Fine Arts 1, 2, 3.

Honor work will be arranged in connection with these courses.

#### Rhetoric and Oratory

PROFESSOR SEARS AND DR. BRINK

Dr. Brink will offer the following new course. Rhetoric 25, 26. Oratory. Nature of oratory, etc. Selection of subject, development

of theme, choice of title. Deliberative oratory. Analysis of great speeches, practice in oratorical criticism and composition. One hour. First and Second Terms. Elective for Seniors.

## English Literature and Language

PROFESSORS MANLY AND BRONSON

The following new courses are offered:

31, 32, 33. *Eighteenth Century Literature* (exclusive of the novel). Three hours. Through the year. Elective for Seniors, and for Juniors who can satisfy the instructor of their preparation for the course.

PROFESSOR MANLY

Students who cannot devote at least six hours a week to reading should not elect this course. No student will be admitted to the second and third terms who has not done the work of the first.

34, 35, 36. *Shakspeare's Dramatic Art*. A course in literary criticism, complementary to 4, 5, 6. Three hours. Through the year. Elective for graduate students, and for undergraduates who have taken or are taking 4, 5, 6. Will not be offered in 1895-96.

PROFESSOR BRONSON

The subjects in the *Seminary* will be as follows: First Term, Browning's *The Ring and the Book*; Second Term, Emerson's Prose Writings; Third Term, Tennyson's *Idylls of the King*. Elective for graduate students, and for Seniors who have passed in three literature courses. Membership is limited to eight. If more should elect the course, preference will be given first to graduate students, and next to undergraduates according to previous scholarship in the department. Unsuccessful applicants will be notified in ample season to elect a substitute. Three hours. Through the year.

PROFESSOR BRONSON

It should be noted that in 1894-95, 24, 25, 26 (Middle English) will be given instead of 12, 13, 14 (Anglo-Saxon Poetry), and 30 (Milton) instead of 29 (Spenser) in the third term. Course 18, 19 (The Novel) will not be offered in 1894-95; in 1895-96 it will be extended to three terms, and thereafter will alternate yearly with 34, 35, 36.

## History

PROFESSORS JAMESON AND MUNRO

History 14. Advanced course in American History. First Term, special study of the colonial constitutions; Second Term, of the formation of the Federal Constitution; Third Term, of modern American diplomatic history. One hour. Through the year. Elective for graduates. Honor course for Seniors in 7, 8, 9.

PROFESSOR JAMESON

The Seminary of Mediaeval and Ecclesiastical History, open to graduates, and to Juniors as an Honor Course, will meet at Professor Munro's house once a fortnight throughout the year. The number is limited to eighteen.

## Political and Social Science

PROFESSORS WILSON AND JAMESON, MESSRS. GREEN AND WILCOX

6. *Roman Law.* Study of the elements, with special reference to the influence of Roman Law upon English and American systems. Three hours. Second Term. Elective for Juniors and Seniors.

MR. GREEN

7. *Diplomacy.* The art and practice in international negotiation. Three hours. Third Term. Elective for students who have completed Course 3.

PROFESSOR WILSON

The following courses in Elementary Law will be offered during the coming year:

1. Elements of Law. Personal Relations. Three hours. First Term. Elective for Juniors and Seniors.
2. Property, Personal and Real. Three hours. Second Term. Elective for Juniors and Seniors.
3. Contracts. Three hours. Third Term. Elective for Juniors and Seniors.

MR. WILCOX

## **Germanic Languages and Literatures**

A more detailed statement of these courses will be found in a separate circular to be sent to those to whom the electives of the department are open.

## **Romance Languages and Literatures**

**PROFESSOR LANGDON, MESSRS. JOHNSON AND SWIFT**

Courses 22, 23, 24; 28, 29, 30; 16, 17, 18; 25, 26, 27 will be omitted.

French 4, 5, 6 will this year cover both the Classic and the Romantic School, Molière and Victor Hugo receiving special attention.

**PROFESSOR LANGDON**

French 7, 8, 9. History of Romance Literature. Lectures on the history and philosophy of the Poetry of the Romance Nations from the early middle ages to the present time, with special reference to the literature of France. Two hours. Through the year. Elective to all who have passed with credit Course 4, 5, 6.

**PROFESSOR LANGDON**

French 19, 20, 21. Old French. Introduction to the study of Romance Philology and the literature of the Middle Ages in France. One hour. Through the year. Elective for those who have passed Course 7, 8, 9.

**MR. JOHNSON**

The Courses in Italian will be in charge of Professor Langdon. Mr. Johnson will conduct the elementary course in Spanish.

## **Applied Mathematics**

**PROFESSORS CLARKE AND RANDALL, MESSRS. BROWNELL,  
BURNHAM AND ISHAM**

### **MECHANICS**

The Course Mechanics 1, 2 has been transferred to the department of Physics, and is scheduled as Physics 1.

Course 5 will not be given this year.

## II

### DRAWING

Two new courses in Mechanical Drawing will be offered during the year.

19. Mechanical Drawing. Continuation of Course 16. Plane and solid problems. Advanced orthographic and isometric projection. Three hours. Second Term. Elective for those who have passed in Course 16.

PROFESSOR RANDALL

20. Mechanical Drawing. Continuation of Course 19. Practical work in shades and shadows and perspective. Three hours. Third Term. Elective for those who have passed in Course 19.

PROFESSOR RANDALL

Courses 13 and 14 will be dropped and their places taken by Architecture 1, 2. See Fine Arts, p. 6.

The courses in Freehand Drawing will be under the charge of Mr. Isham, and will be listed as follows:

Drawing 2, 3, 4. Freehand Drawing. Outline and light and shade in pencil and charcoal from models and casts. One hour. Through the year. Elective for all students.

Drawing 21, 22, 23. Freehand Drawing. Continuation of Drawing 4. One hour. Through the year. Elective for those who have passed Course 4.

Drawing 24, 25, 26. Freehand Drawing. Continuation of Course 23. One hour. Through the year. Elective for those who have passed Course 23.

Mr. Burnham will give as part of the Mechanical Engineering course the following:

Drawing 27, 28. Advanced Machine Design. Three hours. First and Second Terms. Required of Seniors on the M. E. course. Elective for Seniors who have taken Drawing 12 and Mechanics 3, 4, 6.

### CIVIL ENGINEERING

In the Junior year, instead of Astronomy 1, 3, and 4, and Physics 6, 7, and 12, students may elect two three-hour courses in Astronomy, Physics or Mechanical Engineering.

In the Senior year, instead of Geology 1 and 2, Physics 9 and 10, and six hours of required work in third term, students may elect two three-

hour courses in Astronomy, Physics, Mechanical Engineering or Geology.

The course in the third term of the Senior year will be re-arranged to suit these changes.

The course in Drawing required for Civil Engineering 1 may be taken the same term in which this course is elected.

The requirements for Civil Engineering 12 will include a sufficient knowledge of drawing to enable the student to make detail drawings properly.

The attention of students is called to the fact that by arranging their electives on the A. B. or the B. P. course to cover the studies the first three years of the C. E. course, they may obtain the degree of C. E. by one year's graduate work at the University.

## MECHANICAL ENGINEERING

The following new courses will be given by Mr. Burnham.

Mechanical Engineering 3, 4, 5. *Steam Engineering.* Three hours. Through the year. Required of Juniors on the M. E. course. Elective for Juniors and Seniors who have taken Physics 1, 2, 4.

Mechanical Engineering 9. *Thermo-dynamics.* Three hours. Third Term. Required of Juniors on the M. E. course, Elective for Juniors and Seniors who have taken Physics 1, 2, 4, and Mathematics 14.

Mechanical Engineering 6, 7, 8. *Strength of Materials.* Three hours. Through the year. Required of Seniors on the M. E. course. Elective for Seniors who have taken Mechanics 3, 4, and 6.

Drawing 27, 28. See "Drawing."

## Physics

### PROFESSOR BLAKE AND MR. PALMER

1, 2, 4. General course. First Term, Mechanics and Acoustics; Second Term, Optics and Radiant Heat; Third Term, Heat and Electricity. Three hours. Through the year. Elective for Sophomores and Juniors. The course throughout the year is essentially a unit, and students are advised to carry through the whole of it.

PROFESSOR BLAKE

5, 9, 10. Physical Laboratory. General course. First Term, Mechanics and Acoustics; Second Term, Optics and Radiant Heat;

Third Term, Heat and Electricity. Three hours (six hours of attendance in the laboratory). Elective in connection with or after Physics 1, 2, 4.

PROFESSOR BLAKE AND MR. PALMER

13. Elementary course in Electricity and its applications. Lectures introducing the mathematical treatment of the subject, with numerous examples and frequent written exercises. Three hours. First Term. Elective for students who have passed in Physics 1, 2, 4 and Mathematics 10.

MR. PALMER

11. Special course in Electricity. Design of dynamos and motors, general methods of testing, etc. Three hours. Second Term. Elective for those who have passed in Physics 3 and Mathematics 13.

MR. PALMER

15. Electrical Engineering Laboratory. Practical tests of dynamos and motors. Three hours (six hours of attendance in the laboratory). Third Term. Elective for those who have passed in Physics 5, 9, 10, 11.

PROFESSOR BLAKE AND MR. PALMER

12. Optical theory from the mathematical standpoint. Text-book, Preston's "Theory of Light." Three hours. Second Term. Elective for Juniors and Seniors who have passed in Physics 1, 2, 4 and Mathematics 14, or their equivalent.

PROFESSOR BLAKE

13. Elementary Dynamics. Three hours. First Term. Elective for those who have passed in Physics 1, 2, 4, 5, 9, 10, and Mathematics 14.

MR. PALMER

14. Thermo-dynamics. Three hours. Second Term. Elective for those who have passed in Physics 13 and Mathematics 15.

MR. PALMER

## Comparative Anatomy

PROFESSORS BUMPUS AND FIELD, AND MR. GORHAM

Professor Bumpus will resume charge of the department for the coming year, and conduct the courses scheduled in the last Catalogue.

Professor Field will offer the following:

12. Cellular Biology. Introduction to Animal and Vegetable Morphology and Physiology. Three hours (six hours of attendance). First Term. Elective for Sophomores, Juniors and Seniors.

13. Experimental Biology. This course is intended particularly for those who intend to study medicine, and will deal in an experimental way with the vital phenomena of the mammalian tissues and organs. Three hours (six hours of attendance). Second Term. Elective for those who have completed the course in Physiology, or Comparative Anatomy 3 and 4.

Courses 6, 7, 8; 9, 10, 11 will be omitted.

## Botany

PROFESSOR BAILEY AND MR. OSTERHOUT

Two new courses will be offered by Professor Bailey, as follows:

Botany 10. *Study of Mosses*. Three hours. Second Term. Elective for students who have completed Courses 1-6 inclusive.

Botany 11. Practice in determining dry plants, especially those which are extra-regional. Three hours. Third Term. Elective for students who have completed Courses 1-6 inclusive.

## Agricultural Zoölogy

PROFESSOR JENKS

The course of lectures heretofore given during the first term will be omitted.

## Time Schedule

The studies for the Fall Term will be divided into ten groups as follows:

Group 1, nine A. M. on Monday, Wednesday, and Friday. Philosophy 8, Philosophy 2 (1st), History 1 (2d), German 7, Rhetoric 2 (1st) (3d), German 1 (2d) (4th).

Group 2, nine A. M. on Tuesday, Thursday, and Saturday. Philosophy 5, Philosophy 2 (2d), History 1 (1st), Rhetoric 2 (2d) (4th), German 1 (1st) (3d).

Group 3, ten A. M. on Monday, Wednesday, and Thursday. Philosophy 11, Greek 6, Fine Arts 1, History 4, Political Economy 4, Chemistry 1 (1st), Physics 1, Mathematics 15, English, 31.

Group 4, ten A. M. on Tuesday, Friday, and Saturday. Latin 11, Oriental History 1, English 24, Drawing 10, Chemistry 1 (2d), Comparative Anatomy 3, Italian 1, German 4 (1st), Physics 13.

Group 5, eleven A. M. on Monday, Tuesday, and Thursday. Greek 10, Social Science 1, Mechanics 3, Drawing 7, Chemistry 7, Italian 4, Hebrew 7, Drawing 27, Comparative Anatomy 12.

Group 6, eleven A. M. on Wednesday, Friday, and Saturday. History 7, English 4, Mechanics 7, Chemistry 4, Drawing 16, German 4 (2d), Greek 16, Architecture 9.

Group 7, twelve M. on Monday, Wednesday, and Friday. Latin 4, French 7, Chemistry 7, Political Science 1, Mathematics 9, Botany 7, English 34, Architecture 3, Civil Engineering 12, Mechanical Engineering 6.

Group 8, twelve M. on Tuesday, Thursday, and Saturday. Political Science 5, English 7, Civil Engineering 1, Geology 1, Botany 4, Spanish 1, Chemistry 4, Fine Arts 4, Mathematics 13, German 10.

Group 9, two P. M. on Monday, Tuesday, and Thursday. Philosophy 20, Political Economy 1, Civil Engineering 5, Botany 1 (Soph), English 27, French A (1st), Drawing 15, Mechanical Engineering 1, Physics 3, Chemistry 1 (Lab.)

Group 10, three P. M. on Tuesday, Thursday, and Friday. Hebrew 1, French 4, Astronomy 1, Civil Engineering 9, Physiology 2, Elementary Law 1, Mechanical Engineering 3.

Drawing 2 will occur from nine to eleven A. M. on Saturdays; Greek 23 from ten A. M. to twelve M. on Saturdays; Rhetoric 10, ten A. M. Tuesdays; Rhetoric 13, ten A. M. Fridays; Rhetoric 5, ten A. M. Saturdays; German 13, ten A. M. Wednesdays; Greek 21, eleven A. M. Thursdays; Philosophy 29 and French 10, eleven A. M. Wednesdays; Hebrew 4 and French 19, eleven A. M. Saturdays; Drawing 21 and Greek 26, two P. M. Fridays; German 16, three P. M. Fridays.

Sophomore Elocution will be held in three divisions at two P. M. Monday, three P. M. Thursday, and twelve M. Saturday respectively.

*Careful attention should be given to the following statements:*

In making elections students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructor.

The arrangement of the Freshman schedule will be announced at the beginning of the term.

No Sophomore will be allowed to elect a study in Group 6 as the required Military Drill will be placed there during the First and Third Terms, and Gymnasium Work during the Second Term.

The elective lists for the Fall Term are enclosed with this circular. Students must make their elections and return the list to the Registrar's Office on or before Wednesday, September 12.

Sophomores who have taken Rhetoric 2, 3, 4, and Elocution, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

All who desire to take Honor Courses during the First Term must make application in writing, countersigned by the Professor, at the Registrar's Office on or before October 15, 1894.

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BROWN UNIVERSITY  
ANNUAL  
ANNOUNCEMENT  
ACADEMIC YEAR

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# BROWN UNIVERSITY

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1895-96

The Academic Year begins Wednesday, September 18, with Chapel Service at 8.40 A. M. Immediately after this service the President will deliver an address before the University. At the close of this, the classes will begin their sessions according to the Schedule.

Students report at the Registrar's office on Monday, September 16, or Tuesday, September 17, for registration. All students registering or in any way changing their registration after Wednesday, September 18, will be charged a fee of five dollars each.

Students delinquent in the studies of preceding years will report at the Registrar's office on Monday morning, September 16, at 9 A. M., where will be posted the Schedule of Delinquent Examinations for Monday and Tuesday. Attention is called to the rules governing such examinations given on page 168 of the Catalogue for 1894-95. Students absent from these delinquent examinations will be charged a fee of two dollars each for each subsequent examination.

Examinations for admission to the Freshman Class will be held in Rhode Island Hall, beginning Monday, September 16, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 16 and 17. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

The following additions to the Faculty have been made :

Carl Barus, Ph. D., Professor Physics; G. F. Allinson, Ph. D., Associate Professor of Greek Literature and History; Hammond Lamont, A. B., Associate Professor of Rhetoric and Oratory; C. F. Kent, Ph. D., Associate Professor of Biblical Literature and History; R. E. Neil Dodge, A. M., Instructor in English Literature; H. F. Linscott, Ph. D., Instructor in Latin and Philology; R. W. Tower, A. M., Instructor in Physiological Chemistry; A. D. Mead, Ph. D., Instructor in Neurology; J. N. Ashton, A. M., Instructor in Music; F. Slocum, A. B., Instructor in Mathematics; W. G. Cady, B. P., Instructor in Mathematics; G. A. Williams, Ph. D., Instructor in Greek; C. V. Tower, A. M., Instructor in Philosophy. Messrs. Manning, Dealey, Jacobs and Hill have been promoted to professorial rank.

## GRADUATE INSTRUCTION

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the Degrees of Master of Arts and Doctor of Philosophy.

Further particulars may be found in the current Catalogue.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., B. P., B. S., M. E., and C. E., will be in the main as stated in the Catalogue for 1894-'95. The following paragraphs mention only those departments in which changes occur.

**NOTE:** By thoroughly pursuing the proper College Courses, a student for Law, Medicine or Theology may save a year of study in the professional school.

### Philosophy

For the coming year Philosophy, 2 and 3, Psychology, will be made elective for Juniors, Philosophy 19 still remaining a required study.

The subject of study in the Philosophical Seminary will be Hegel's Logic (Wallace's Translation.)

The course in Pedagogy under Professor Jacobs (31, 32, 33), has been extended to three terms, as a three hour course open to Seniors and graduates. It will include the following courses :

*First Term.* The History of Educational Theories and Institutions, Greek and Roman Education, Plato, Aristotle, Quintilian ; The Christian Schools, Charlemagne and Alcuin ; The Rise of the Universities ; The

Renaissance and the Reformation, Erasmus, Luther, Sturm, the Jesuits ; The Educational Reformers, Rousseau, Pestalozzi, Froebel ; Herbart and the Herbartians ; Education in the United States. Lectures, Essays, Private Reading of Educational Classics.

*Second Term.* The Institutes of Pedagogy, Laurie's Institutes of Education ; Rosenkranz, Philosophy of Education ; Ufer's Pedagogy of Herbart ; Rein's Outlines of Pedagogics. Lectures, Essays, Conferences.

*Third Term.* School Organization and Administration. School Systems in this Country and in Europe ; School Hygiene ; School Management and Discipline ; Courses of Instruction ; Methods in Teaching certain Subjects, Reports of Committee of Ten and Committee of Fifteen ; Observation of Typical Schools.

Appointments will be made from members of the Senior Class who have completed these three courses, to the position of Student-Teacher in the Providence High School.

Mr. Tower will offer the following course: 34, 35. Kantian Philosophy. An outline study of the Philosophy of Kant, and later developments of his system. Based on Watson's selections. Three hours. First and Second Terms. Elective for Seniors and graduate students.

## Greek

Courses 7-12 and 16-18 will not be given in 1895-6, but the following new ones are offered to Juniors and Seniors :

13, 14, 15. Homer and the Mycenæan Civilization. The *Odyssey* with portions of the *Iliad* will be read in the original ; the remainder of the poems in translation. The work will be constantly illustrated by the results of archæological research at Mycenæ and other Homeric centres. Three hours. Through the year.

PROFESSOR MANATT

28, 29, 30. Plato and Lucian. After reading the *Phædrus* and *Protægoras* of Plato, the class will take up Lucian in connection with frequent excursions into the classical authors, and into the life and philosophy of the 2d century, A. D. Three hours. Through the year.

PROFESSOR ALLINSON

Under Nos. 22, 23, 24, Professor Manatt will offer a one hour course in Modern Greek: (a) Rangabe's New Method; (b) Bikelas' Louke's Laras; (c) Greek Newspapers. Elective for Juniors and Seniors.

To graduates, in place of the courses in the last Catalogue, the Department offers six hours of instruction, as follows :

The centre of work in the Greek Seminary will be, alternately, (a) Aristotle's Athenian Constitution (Professor Manatt) and (b) Lucian (Professor Allinson). Two hours through the year. Professor Manatt will also offer 31, 32, 33, Greek Politics, Aristotle and Polybius. Two hours. Through the year.

## Latin

Professor Albert G. Harkness, after a year of study in Germany and Italy, will return to resume charge of the department. In addition to the Latin courses in the Catalogue Professor Harkness offers a Seminary Course in Epigraphy. Two hours weekly. Through the year. Open to Juniors, Seniors and graduates.

Professor Harkness will be assisted by Mr. Greene and Dr. Linscott.

## Philology

Professor Allinson will offer, as Greek 34, 35, 36, Linguistic Science and Classical Philology. Two hours. Through the year.

In addition to his work in Latin, Dr. Linscott will offer during the year a course in Comparative Grammar and a course in Aveston (Zend).

A three hour course in Sanskrit will be taught through the year.

Dr. Scott will offer an introductory course in Pali, Miller's Pali Grammar, Elwell's Jatakas, Childer's Mahaparinibbana Suta. Lectures. One hour. Through the year.

## The Fine Arts

The following changes are made in the announcement of the courses in the History of Art, given by Professor Poland.

4. Early Christian and Mediæval Art. This course will be given in the second term. Courses 1, 4 and 6 thus form a consecutive outline course.

The two following courses are new :

10. Vitruvius, or a critical study of Classical Architecture, with some notice of the influence of Vitruvius in the Renaissance. Vitruvius will be read in the original Latin, with discussion of the principles followed by the Greek and Roman architects in their temples, theatres and other edifices. The important influence of Vitruvius in the Renaissance on the great theorists and architects and through them in even later times will be noticed. The existing monuments of Greek and Roman architecture will be studied, and the statements of Vitruvius will be examined in the light of modern archæological science. Three hours. First Term. Elective for Juniors, Seniors and graduates who have completed the Freshman course in Latin, or its equivalent.

11. Greek and Roman Sculpture studied from the sources. H. Stuart Jones's "Select Passages from Ancient Writers illustrative of the History of Greek Sculpture," a collection of Greek and Latin passages, with translation and commentary, will be the text book. The existing monuments will be studied in connection with the text. The method will be the same as in course 10. Three hours. Second Term. Elective for Juniors, Seniors and graduates who have completed the Freshman courses in Latin and Greek, or their equivalents.

Course 3 (see catalogue) will be given in the third term (instead of in the second), and will be elective for Juniors, Seniors and graduates who have completed course 1 (if they have completed Freshman Latin and Greek), or course 10 or 11.

Course 10, 11 and 3 will thus be a consecutive critical course in Classical Archaeology. Those who take these three courses will not take course 1, as its content will be presented more fully here. These courses will be especially useful to those who intend to do advanced work in classical archaeology, philology or history, to teach Latin and Greek, or to compete for the fellowships in the American schools at Athens and Rome.

The following course is new:

9. Modern Art, in the Nineteenth Century. A continuation of course 7, (see catalogue) which will be confined mainly to the seventeenth and eighteenth centuries. Three hours. Second Term. Elective for those who have completed course 7.

Course 8 will be elective for those who have completed any other course in the History of Art.

Courses 7, 9 and 8 form a consecutive outline course.

### Music

The following courses in Music will be offered during the coming year, by Mr. Ashton:

Music 1. Harmony, considers the construction, relations and connections of chords. Three hours. First Term. Elective for Juniors and Seniors.

Music 2. Harmonization, considers the use of non-harmonic tones and offers practice in the harmonization of subjects. Three hours. Second Term. Elective for Juniors and Seniors.

Music 3. Simple Counterpoint, considers the melodious treatment of several voice-parts in harmonic combination. The work consists principally of writing exercises from figured voice-parts, of harmonizing given melodies, and of adding melodious parts. The exercises will be corrected in class-room with explanations and illustrations. Instruction will be given regularly, lectures occasionally. Three hours. Third Term. Elective for Juniors and Seniors.

Music 1, 2 and 3 are sequential and must be taken in order. Courses in Double Counterpoint, Fugue and Free-Music will follow in subsequent years. These courses must be preceded by the courses in Harmony, Harmonization and Simple Counterpoint.

Music 10 is a course in the history of music, given during the First Term. It consists of lectures, collateral reading and reports thereon. The gradual development of music from ancient to modern times will be traced, and special attention given to certain typical masterpieces.

Music 10 will be followed in the Second Term by Music 11, a course in the historical development of musical form. This will be continued in the Third Term by Music 12, a course in musical analysis.

Music 10, 11 and 12 are sequential and must be taken in order. They are each given three hours per week. Elective for Juniors and Seniors.

Music 13 is a course in Sacred Music, and treats the subject theoretically and practically. It is given in the Third Term and may be taken instead of Music 12. It may be elected by those who have never taken any course in Music.

A knowledge of the rudiments of music is required of those entering any of the courses in Music. Some ability in pianoforte or organ playing is desirable.

### **Architecture**

The changes in the Architectural courses will be as follows:

Courses 3, 4, 5 as scheduled in the Catalogue, will be dropped and in their place the following will be offered:

6, 7, 8. Design. Problems for solution. Preliminary sketches submitted for approval. Final drawings, plans, elevations, sections and perspectives rendered. Criticism. Three hours (six hours drawing). Through the year. Elective for those who have passed in Course 2.

In 17, 18, 19, Advanced Construction, the requirements are changed, so that the course will be open to all students who have taken Mathematics 1, 2, 3.

The following new courses will also be offered:

20, 21, 22. History of Ornament. Study of nature and development of ornament with reference to architectural design and to decoration. Three hours (six hours drawing). Through the year. This course is valuable to all designers. Elective for all students who have taken or are taking Drawing 2.

23, 24, 25. Colonial Architecture in New England. Studied from the monuments. Three hours. Through the year. Elective for graduates and advanced undergraduates with consent of instructor.

All other courses remain unchanged.

### **Biblical Literature and History**

#### **Semitic Languages and Literatures**

1, 2. Hebrew: Harper's Manual and Elements. Three hours. First and Second Terms. Elective for Juniors and Seniors.

3. Reading, in the original, of passages selected from the Books of Samuel, with study of Hebrew Syntax and textual criticism. Driver's Notes. Three hours. Third Term. Elective for Juniors and Seniors.

4. Minor Prophets of the Assyrian Period. Critical translation and interpretation in the light of the history of the times. Three hours. Second Term. Elective for Juniors and Seniors.

5. Hebrew History from the settlement in Canaan to the Disruption. Based on the revised version, statements from the monuments, and information furnished by modern Palestine and its life. Recitations, informal lectures and supplementary reading. Three hours. First Term. Elective for Juniors and Seniors.

6. Hebrew History from the Disruption to the Exile. Continuation of Course 5. Especial attention to the character and work of the prophets. Three hours. Second Term. Elective for Juniors and Seniors. See, further, New Testament 4, below.

7. The Wisdom Literature of the Old Testament. Proverbs, Job, Song of Songs, and Ecclesiastes. Analysis of contents, date and authorship. Three hours. Third Term. Elective for Juniors and Seniors.

Courses 5 to 7, inclusive, will require no knowledge of Hebrew.

Arabic 1, 2, 3. Lansing's Arabic Manual. Selected suras from the Koran. One hour. Through the year. Elective for Juniors and Seniors.

Assyrian 1, 2, 3. Lyon's Assyrian Manual. One hour. Through the year. Elective for Juniors and Seniors.

Assyrian 4, 5. Historical inscriptions of Sennacherib and Esarhaddon. One hour. First and Second Terms. Elective for Juniors and Seniors.

#### **New Testament Language and Literature**

1. The Gospel of Mark. Critical translation. Study of linguistic peculiarities and text criticism. Three hours. First Term. Elective for Juniors and Seniors.

2. The Gospel of Luke. Rapid reading. Study of the contents in the light of the history. Three hours. Second Term. Elective for Juniors and Seniors.

3. Paul's Corinthian Epistles. Rapid reading. Analysis of thought. Study of the Pauline teaching. Three hours. Third Term. Elective for Juniors and Seniors.

4. Historical Study of the Life of Jesus. In English. Stevens & Burton's Harmony. Systematic study of the events in their geographical and historical relations. Intended to follow Semitics 6. Three hours. Third Term. Elective for Juniors and Seniors.

All the courses in this department, especially the more advanced, will be very profitable for graduate students.

#### **English**

##### **English Literature and Language**

NOTE.—Courses announced in groups are continuous. Thus a student cannot take English 5 without having taken English 4, nor can he take English 6 without having taken English 4 and 5. The same principle

applies to all courses similarly grouped. In all other instances pre-requisites for admission to a course are specially announced.

10. Anglo-Saxon. Elementary Course. The essentials of the grammar, and the reading of easy prose. Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

PROFESSOR MANLY

11. Anglo-Saxon. Prose and poetry. Three hours. Second Term. Elective for students who have passed in 10.

PROFESSOR MANLY

12. Anglo-Saxon. *Béowulf*. Three hours. Third Term. Elective for students who have passed in 11.

PROFESSOR MANLY

13, 14, 15. Oldest English Texts. Three hours. Through the year. Elective for students who have passed in 12. Omitted in 1896-97.

PROFESSOR MANLY

[24, 25, 26. Middle English. Three hours. Through the year. Elective for students who have passed in 12. Omitted in 1895-96.]

PROFESSOR MANLY]

27, 28. Chaucer. Elementary Course. Three hours. First and Second Terms. Elective for Sophomores, Juniors and Seniors.

PROFESSOR MANLY

39. The History of the English Language. Elementary Course. Three hours. Third Term. Elective for students who have passed in 11 or 28.

PROFESSOR MANLY

1, 2, 3. English Literature. Elementary Course. Designed as a preparation for more advanced courses, and also as a general course for students who do not intend to pursue the subject of English Literature further in college. The work will be of two kinds: *a*. Critical: training in careful reading; study of the elements of literary form. *b*. Historical: rapid reading in the principal poets and prose-writers from Spenser to Tennyson; lectures, supplemented by a text-book, on authors and periods. Frequent written recitations. Three hours. Through the year.

PROFESSOR BRONSON AND MR. DODGE,

ASSISTED BY PROFESSOR MANLY

In 1895-96 Course 1, 2, 3 will be elective for Sophomores, and for Juniors who have not taken 7, 8, 9. After 1895-96 it will be elective for Sophomores and Juniors, and for Seniors who have taken no literary course in the English department.

After 1895-96 students who have not taken 1, 2, 3, or some other literary course, will not be admitted to the more advanced courses in English Literature. The linguistic courses will still be open to them.

4, 5, 6. Shakspere. Linguistic Course. Three hours. Through the year. Elective for Juniors and Seniors. May be taken two years in succession.

PROFESSOR MANLY

[34, 35, 36. Shakspere. Literary Course. Three hours. Through the year. Elective for students who have passed in 1, 2, 3, or some other literary course, and who have also passed in or are taking 4, 5, 6. Omitted in 1895-96.

PROFESSOR BRONSON]

40, 41, 42. English Literature from Wyatt to Milton, exclusive of the Drama. The aim of this course will be to give the student a fair acquaintance with the leading movements and the leading men of the period. The amount of reading required will be large, and there will be theses, written reports, etc. The course is intended for those students only who have passed beyond the preliminary stages of literary study. Three hours. Through the year. In 1895-96 elective for Seniors and for such Juniors as can satisfy the instructor that they are sufficiently advanced; thereafter, for students who have passed in 1, 2, 3, or some other literary course.

MR. DODGE

31, 32, 33. English Literature from Dryden to Cowper, exclusive of the Novel. In this course the great men will be studied, and such of the lesser men as are especially characteristic of their time. Some stress will be laid on political and social conditions, the state of the reading public, and similar topics. The course will be a careful general survey of the field. The student will be held to methodical and careful reading. Three hours. Through the year. In 1895-96 elective for Juniors and Seniors; thereafter, for students who have passed in 1, 2, 3, or some other literary course.

MR. DODGE

[43, 44, 45. English Poetry from Burns to Keats. Three hours. Through the year. Elective for students who have passed in 1, 2, 3, or some other literary course. Omitted in 1895-96.

PROFESSOR BRONSON]

46, 47, 48. English Poetry of the Victorian Period. Three hours. Through the year. In 1895-96 elective for Seniors, and for Juniors who have passed in 7, 8, 9. (For the coming year the course will be so arranged as to supplement 7, 8, 9). After 1895-96 elective for students who have passed in 1, 2, 3. Omitted in 1896-97.

PROFESSOR BRONSON

50, 51, 52. English Essayists of the Nineteenth Century. Three hours. Through the year. In 1895-96 elective for Juniors and Seniors who have passed in Rhetoric 2, 3, 4; thereafter, for students who have passed in 1, 2, 3, or some other literary course, and in Rhetoric 2, 3, 4.

PROFESSOR BRONSON

18, 19, 37. The English Novel. Three hours. Through the year. In 1895-96 elective for Juniors and Seniors; thereafter, for students who have passed in 1, 2, 3. Omitted in 1896-97.

PROFESSOR BRONSON

[20, 21, 22. Seminary in English Literature. Omitted in 1895-96.]

16, 17, 38. American Literature. Three hours. Through the year. In 1895-96 elective for Juniors and Seniors; thereafter, for students who have passed in 1, 2, 3, or some other literary course.

PROFESSOR SEARS

Courses 29 and 30 and 7, 8, 9 are withdrawn.

No courses are offered leading to Honors in English.

### Rhetoric

2, 3, 4. Practical Rhetoric. Three hours. Through the year. Required of all Sophomores who have not taken the subject in the Freshman year. Elective for Freshmen on the B. P. or B. S. course. Required of Freshmen on the C. E. or M. E. course. For Freshmen who do not elect Elocution this course will be increased to four hours.

PROFESSOR LAMONT

16, 17, 18. English Composition. Advanced course. Short themes four or five times a week, long themes every fortnight, criticism and discussion in class. Three hours. Through the year. Open to such Juniors and Seniors as have done especially good work in composition. The membership of the class will be limited to twenty.

MR. DODGE

33, 34, 35. Argumentative Composition. There will be no drill in oral delivery, but simply in written argumentative composition. Lectures will be given containing practical suggestions on the art of argumentation, as well as comments on defects common in argumentative work, and criticism of arguments written by the students themselves. Each student will be expected to present a brief based upon a masterpiece of argumentative composition, and then four arguments preceded by briefs. The subjects will be taken from the current discussions in the public prints and from the various college courses. Thus by a proper choice of topics students may make their work in argument help them to a knowledge of public questions, or of the studies in which they are specially interested. Each argument is to contain between 1000 and 1500 words. The briefs will be criticised in detail by the instructors and returned to the students in time for them to profit by the corrections in writing the arguments. The arguments will also be criticised in detail. Consultation hours will be arranged so that there will be opportunity for frequent personal conferences on the work of the course. One hour. Through the year. Required of all Juniors.

PROFESSOR LAMONT, with assistants

27, 28, 29. Oral Discussion. A limited number of students will be admitted, with preference given to those who have attained good rank in English Composition, Political Economy and History, and to those who take or have taken instruction in Elocution. The objects of the course are, to give practice in collecting data for argument; to train students in logical and forcible arrangement of thought; to develop the power of oral statement; and to teach good methods of delivery. Debates occupying two

consecutive hours will be held each week. There will be four principal disputants, who will be required to prepare written briefs with references, each to be posted one week before the exercise. The other students will be expected to prepare themselves sufficiently to be able to make short arguments. Matter, arrangement and delivery will be criticised by the instructors. The speakers will also get the benefit of addressing an audience composed of such students from the whole University as may choose to attend the debates. Each member of the course will appear as a principal disputant at least four times yearly. Two hours a week to count as three. Through the year.

PROFESSOR LAMONT, assisted by MR. FOGG and by Professors representing the departments to which most of the debates will relate.

30. History of Oratory. Three hours. First Term. Elective for Juniors and Seniors. This course replaces course 5, 6, 7, in the last catalogue.

PROFESSOR SEARS

31, 32. Occasional Oratory. An analytic and synthetic study of the principles of occasional Oratory. Analysis of master-pieces of American oratory, with composition and criticism. Three hours. Second and Third Terms. In 1895-96, elective for Juniors and Seniors who have passed in Rhetoric 30.

PROFESSOR SEARS

19, 20, 21. Elocution. One hour. Through the year. Elective for all Sophomores and for Freshmen in the B. S., M. E., and B. P. courses.

MR. FOGG

36, 37, 38. Advanced Elocution. One hour. Through the year. Elective for Juniors.

MR. FOGG

All the instruction in Elocution is elective, enabling the instructor to make the work more helpful to those who take it. The instruction will be practical, yet based on correct theory. Individual training will be made prominent and the number of declamations large, the aim being to make effective public speakers, not reciters. The Carpenter prize speakers will be selected during the second term, and will receive particular attention the rest of the year.

## History

Course 4, 5, 6 will, during 1895-6, be conducted by Mr. E. C. Burnett. Dr. Dealey will assist Professor Jameson in History 12 and 14.

## Social and Political Science

### Social Science

1. The Principles of Sociology. Lectures. Three hours. First Term. Elective for Juniors and Seniors.

PROFESSOR WILSON

2. Social Problems and Conditions. Involving consideration of some of the conclusions of Anthropology and Ethnology. The Family, Marriage, Divorce, Immigration, Charity, Pauperism, Criminology. Penology, Intemperance, Education, Social Legislation and its significance. Lectures. Three hours. Second Term. Elective for those who have completed Course 1.

PROFESSOR WILSON

3. Social Problems and Conditions. Continuation of Course 2. Third Term. Elective for those who have completed Courses 1 and 2.

PROFESSOR WILSON

4. Social Philosophy. Lectures and exercises. Three hours. Second Term. Elective for those who have taken 1, 2, 3, and for graduates.

PROFESSOR DEALEY

5. Development of Social Theory. Lectures and exercises. Three hours. First Term. Elective for those who have taken 1, 2, 3, and for graduates.

PROFESSOR DEALEY

6. Segregation of Population. Causes and problems. Three hours. Third Term. Elective for students who have taken 1, 2, 3, and for graduates.

PROFESSOR DEALEY

History of Germanic Institutions, Political and Social. From the earliest records to A. D. 1250. Auxiliary course. Lectures. One hour. Through the year. Elective for graduates. Reading knowledge of German required. [See German 31, 32, 33.]

PROFESSOR SCOTT

#### Political Science

1. The State. Origin, development, conditions, forms, end, and functions. Recitations, lectures, exercises. Three hours. First Term. Elective for Juniors and Seniors.

PROFESSOR WILSON

2. Comparative Study of Constitutions. Especially those of the United States, Germany, France, Switzerland, England. Lectures and exercises. Three hours. Third Term. Elective for those who have taken Course 1.

PROFESSOR DEALEY

3. International Law and Relations. Three hours. Second Term. Elective for those who have completed Course 1.

PROFESSOR WILSON

4. United States Constitutions. National and local state constitutions and institutions. Three hours. Second Term. Elective for those who have taken Course 1.

PROFESSOR DEALEY

5. Development of Political Theory. Three hours. First Term. Elective for those who have taken Course 1.

PROFESSOR DEALEY

6. Roman Law. Historical and legal exposition. Influence on political institutions. Three hours, Second Term. Elective for Juniors and Seniors.

MR. GREEN

7. Diplomacy. The art and practice of international negotiation. Three hours. Third Term. Elective for those who have taken Course 3, and for graduates.

PROFESSOR WILSON

### **Elementary Law**

The following courses will be given during 1895-6 in place of Courses 1, 2, 3. Thereafter 1, 2, 3 and 4, 5, 6 will be given in alternate years.

4. Practice, Pleading, and Evidence. Three hours. First Term. Elective for Juniors and Seniors,

MR. WILCOX

5. Torts. Three hours. Second Term. Elective for those who have completed Course 4.

MR. WILCOX

6. Criminal Law and Procedure. Three hours. Third Term. Elective for those who have completed Courses 4 and 5.

MR. WILCOX

Instruction in all the above courses will be by text books, lectures, and cases.

### **Political Economy**

In place of Course 4 the following course will be given in 1895-96 during the first term :

7. Questions of Economic Policy. Discussion of socialism, free trade and protection, regulation of railways, etc.

PROFESSOR GARDNER

### **German**

Course 43, 44, 45 will be given as a three-hour course through the year.

Dr. Scott will offer the following new course :

31, 32, 33. Germanic Institutions. Lectures on the political and social institutions of Germanic peoples from the earliest records to A. D. 1250. One hour. Through the year. Elective for graduates.

During the year German 16, 17, 18 will be open only to Seniors and graduates.

German 40, 41, 42 will consist entirely of Composition. The Conversation will be omitted.

### **Romance Languages and Literatures**

The following statement replaces the one given in the catalogue :

**French**

A, B. C. Elementary Course. Grammar, composition and reading of easy selections in modern French. Three hours. Through the year. The equivalent of the Elementary French required for admission. Required of all Sophomores who offer German for admission instead of French.

1, 2, 3. Modern French. Mérimée's *Colomba*; Balzac's *Eugénie Grandet*, Sandeau's *Mlle de la Seiglière*; Augier's *Le Gendre de M. Poirier*; Pailleron's *Le Monde où l'on s'ennuie*; also selections from French lyrical poetry. Rapid translation with special study of unusual constructions and idioms. Readings by the instructor and class in the original. Three hours. Through the year. Required of all Freshmen

MR. JOHNSON

4, 5, 6. French Classics. Literary study in the original, of the masterpieces of Corneille, Racine, Molière, La Fontaine, Victor Hugo and Alfred de Musset. Three hours. Through the year. Elective for all who have passed with credit in French 1, 2, 3.

PROFESSOR LANGDON

13, 14, 15. Practice in Writing and Speaking French. Based on Larive et Fleury's *La Deuxième Année de Grammaire*. Two hours. Through the year. Elective for all who have passed with credit in French 1, 2, 3.

MR. JOHNSON

33, 34, 35. History of the Romance Literatures. Lectures based upon Demogeot's *Littérature Française* and *Littératures Étrangères*. Reports by the class on readings of masterpieces supplementary to those taken up in Course 4, 5, 6. Three hours. Through the year. Open only to those who have passed with credit in French 4, 5, 6.

PROFESSOR LANGDON

*Graduate Courses open to Seniors with the consent of the instructor:*

10, 11, 12. French Literature of the Nineteenth Century. A study of the Romantic, Realistic and Naturalistic schools, based upon Pellisier's *Le Mouvement Littéraire au XIXme Siècle*. Weekly reports of assigned readings. Biographical lectures. Three hours. Through the year. Elective for Seniors who have passed with credit in French 4, 5, 6.

MR. JOHNSON

16, 17, 18. French Literature of the Sixteenth Century. Study of *Le Seizième Siècle en France* by Darmesteter et Hatzfeld. One hour. Through the year. Offered as required.

PROFESSOR LANGDON

21, 31, 32. Old French. The elements of French Philology. Reading of texts. Selections from *La Chanson de Roland*; *Extraits des Chroniqueurs Français*; *Aucassin et Nicolette*. *Chrestien de Troyes' Yvain*: One hour. Through the year.

MR. JOHNSON

25, 26, 27. Provençal. Selections from Bartsch's *Chrestomathie Provençale*. One hour. Through the year.

PROFESSOR LANGDON

### Italian

1, 2, 3. Modern Italian. The Elements of grammar. Rapid translation. De Amicis' *Alberto* and *Cuore*; Farina's *Il Signor Io*; Manzoni's *I Promessi Sposi*. Three hours. Through the year. Elective for Juniors and Seniors.

PROFESSOR LANGDON

7, 8, 9. Dante in English. The whole of the *Divina Commedia* studdied in English. Two hours. Through the year. Elective for Juniors and Seniors at the instructor's discretion.

PROFESSOR LANGDON

10, 11, 12. Dante. Special study of selected cantos in the original. One hour. Through the year. Open only to those who have passed with credit in Italian 1, 2, 3.

PROFESSOR LANGDON

13, 14, 15. Classical Course. Selections from Petrarch, Boccaccio, Ariosto and Tasso. One hour. Through the year. Open only to candidates for advanced degree.

PROFESSOR LANGDON

16, 17, 18. Old Italian. Nannucci's *Manuale della Letteratura del Primo Secolo della Lingua Italiana*. One hour. Through the year.

PROFESSOR LANGDON

### Spanish

1, 2, 3. Modern Spanish. The elements of grammar. Rapid translation Alarcon's *El Final de Norma*; Valdès' *José*. Galdos' *La de San Quintin* and *Dona Perfecta*. One hour a week is devoted to conversation and reading in the original. Three hours. Through the year. Elective for Juniors and Seniors.

MR. JOHNSON

4, 5, 6. Classical Course. Selections from Calderon, Lope de Vega, with special study of Cervantes' *Don Quixote*. One hour. Through the year. Open only to candidates for an advanced degree.

PROFESSOR LANGDON

7, 8, 9. Old Spanish. Poema del Cid, Keller's *Altspanisches Lesebuch*. History of Spanish Literature. One hour. Through the year. Open only to candidates for an advanced degree.

PROFESSOR LANGDON

Advanced graduate courses will be arranged for according to the needs of candidates and the limited time of the officers of the department.

## Physics

1, 2, 4. The course in elementary physics will, as heretofore, present a unit throughout the year and will be elective for Sophomores and Juniors. The first term will be devoted to kinematics and dynamics; the second to molecular physics and heat; and the third to light and electricity. Daniell's text-book of the principles of physics (third edition) will be closely followed, and the course will consist in alternating lectures and recitations, so far as practicable.

Course 12 will not be given during the coming year.

The following new courses will be offered:

20, 21. Harmonic Analysis in its immediate relations to the analytical theory of heat, to electric oscillations, etc. Second and Third Terms. Elective for Juniors and Seniors who have passed physics 1, 2, 4, and mathematics 14, 15.

22. The behavior of matter throughout long ranges of temperature. A course of original research for graduates only. It will have for its object the investigation of accurate methods and data in absolute pyrometry; the determination of the high temperature constants of non-volatile bodies, chiefly of rock-forming magmas, with a view to the elucidation of fundamental questions in the physics of the earth's crust.

23. The behavior of matter throughout long ranges of high pressure. A course of original research for graduates only. The thermo-dynamics of the change of state from solid to liquid, due either to fusion or to solution (from the point of view of Vant' Hoff and the solutionists), are to be investigated with especial reference to the continuity of solid and liquid, and the location of the lower critical temperature.

24. The absolute viscosity of solids as compared with liquids and gases. A course of original research for graduates only. The course has for its object the investigation of absolute data for the viscosity of solids.

25. Physical properties of the iron carburets. A course of original research for graduates only. Certain physical properties of iron, steel and cast iron are to be considered with reference to their bearing on metallurgical and electro-technical problems.

## Comparative Anatomy

Besides a rearrangement of certain of the courses heretofore given, several new courses will be offered.

15, 1. Practical Vertebrate Dissection. Four hours (six hours attendance). First and Second Terms. Elective for Freshmen. Course 15 will be a laboratory course in the Anatomy and Histology of the Frog. Course 1 has been offered to Sophomores heretofore.

MR. GORHAM

2. Invertebrate Dissection. Four hours (six hours attendance). Third Term. Elective for Freshmen who have taken 15 and 1.

PROFESSOR BUMPUS

Juniors and Seniors may elect Courses 15, 1 and 2 by permission of Professor Bumpus.

12, 6, 16. Introductory Biology. Three hours (six hours attendance). First, Second and Third Terms. Elective for Sophomores, and for Juniors and Seniors by permission of Professor Field. A general course, as outlined in the Catalogue p. 145, extending now through the year.

**PROFESSOR FIELD**

10. Normal Histology. Three hours (six hours attendance). First Term. Elective for Juniors and Seniors who have creditably passed on previous work in the department.

**PROFESSOR FIELD**

9. Bacteriology. Lectures and demonstrations of the various methods of bacteriological research, together with practical exercises. Three hours (six hours attendance). Second Term. Elective for Juniors and Seniors who have passed in comparative anatomy 10.

**MR. GORHAM**

3, 4, 14. Comparative Anatomy of Vertebrates. Three hours. First, Second and Third Terms. Elective for Juniors and Seniors.

**PROFESSOR BUMPUS**

8. Comparative Embryology. Three hours (six hours attendance). Third Term. Elective for Seniors and for Juniors who have creditably passed on previous work in the department.

**PROFESSOR FIELD**

16, 17. Anatomy of the Nervous System. Three hours. First and Second Terms. Elective for Juniors and Seniors.

**DR. MEAD**

18, 19, 20. Physiology. Three hours. Third Term, elective for Juniors. First and Second Terms for Seniors. (Seniors of the class of '96 may elect Courses 19 and 20 without having taken Course 18).

**MR. TOWER**

(Courses in Physiology 1, 2 and 3 are discontinued).

Medical Preparatory Students who have taken Comparative Anatomy 1 are advised to elect Courses 12 and 10 the First Term of the Junior year, and to also elect German, 4, Chemistry, 4, and, if possible, Philosophy, 2.

## **Botany**

Freshman Botany 1, 2, 3 will be given four hours per week.

Courses 4, 5, 6, 7, 8 will not be given during the coming year.

Professor Bailey will offer the following:

10. Study of Mosses. Three hours. Second Term. Elective for students who have passed in Course 6.

11. Practice in determining dry plants, especially those which are extra-regional. Three hours. Third Term. Elective for those who have passed in Course 6.

**For Freshmen, Candidates for the Degree of Bachelor of Philosophy, the Course will be as follows:**

<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
Mathematics 1 French 1 or German 4	Mathematics 3 French 2 or German 5 Gymnasium	Mathematics 2 French 3 or German 6

and two of the following groups:

A Botany 1	Botany 2	Botany 3
B Drawing 1	Drawing 5	Drawing 6
C Rhetoric 2 (4 hrs.)	Rhetoric 3 (4 hrs.)	Rhetoric 4 (4 hrs.)
D { Rhetoric 2 (3 hrs.)	{ Rhetoric 3 (3 hrs.)	{ Rhetoric 4 (3 hrs.)
{ Rhetoric 19	{ Rhetoric 20	{ Rhetoric 21
E Greek 1	Greek 2	Greek 3
F Latin 1	Latin 2	Latin 3
G Comp. Anatomy 15	Comp. Anatomy 1	Comp. Anatomy 2

Students on this course, who have no entrance conditions, may elect Drawing 2 as an extra study.

### Time Schedule

The studies for the Fall Term will be divided into ten groups as follows:

Group 1, nine A. M. on Monday, Wednesday and Friday. Philosophy 8, Philosophy 2, History 1 (1st), German 7, Rhetoric 2.

Group 2, nine A. M. on Tuesday, Thursday and Saturday. Philosophy 5, History 1 (2d), German 1 (1st) (2d) (3d), Comparative Anatomy 16.

Group 3, ten A. M. on Monday, Wednesday and Thursday. Philosophy 11, Greek 6, Fine Arts 1, Political Economy 7, Chemistry 1 (1st), Physics 1, Mathematics 15, English 31, Drawing 16, History 4.

Group 4, ten A. M. on Tuesday, Friday and Saturday. Latin 7, English 13, Drawing 10, Chemistry 1 (2d), Comparative Anatomy 3, Italian 1, Rhetoric 30, German 4 (1st), Semitics 5, English 40, Drawing 24.

Group 5, eleven A. M. on Monday, Tuesday and Thursday. Greek 13, Social Science 1, Mechanics 3, Chemistry 7, Drawing 27, Drawing 7, Comparative Anatomy 12, Architecture 17, English 10, English 16, German 1 (4) (5), Music 10.

Group 6, eleven A. M. on Wednesday, Friday and Saturday. History 7, English 4, Mechanics 7, Chemistry 4, German 4 (2d), Greek 28, French 10, Architecture 9, Rhetoric 16, Social Science 5, Civil Engineering 5, Comparative Anatomy 10.

Group 7, twelve M. on Monday, Wednesday and Friday. Latin 4, French 33, Chemistry 7, Political Science 1, Mathematics 9, English 50, Architecture 6, Mechanical Engineering 6, Fine Arts 10, German 1 (6).

Group 8, twelve M. on Tuesday, Thursday and Saturday. Political Science 5, English 1, Spanish 1, Chemistry 4, Fine Arts 7, Mathematics 13, German 16, Architecture 20, Physics 3, Music 1.

Group 9, two P. M. on Monday, Tuesday and Thursday. Philosophy 20, Political Economy 1, Botany 1 (Soph), English 27, Drawing 15, Comparative Anatomy 18, Mechanical Engineering 1, Geology 1, New Testament 1, English 18.

Group 10, three P. M. on Tuesday, Thursday and Friday. Hebrew 1, French 4, Astronomy 1, Elementary Law 4, Mechanical Engineering 3, Philosophy 31, German 43, Philosophy 34, English 46.

Philosophy 29 will occur at eleven A. M. on Wednesday; Greek 22, ten A. M. on Saturday; Latin 10, twelve M. on Saturday; Epigraphy, twelve M. Tuesday and Thursday; Rhetoric 33 (required of Juniors), two P. M. Friday; Rhetoric 19, two P. M. Monday; Rhetoric 36, three P. M. Tuesday; German 40, three P. M. Monday; French 13, Twelve M. Wednesday and Friday; Italian 7, eleven A. M. Monday and Tuesday; Italian 10, eleven A. M. Thursday; Drawing 2, nine to eleven A. M. Saturday; Drawing 21, ten A. M. Thursday; Drawing 24, ten A. M. Tuesday; Rhetoric 27, will be held in a two hour session from two to four P. M. on Monday.

The Civil Engineering courses will be scheduled as follows: Civil Engineering 1, on Mondays and Wednesdays from two to five P. M. Civil Engineering 5, on Wednesdays from nine A. M. to six P. M. Civil Engineering 13, on Mondays, Tuesdays and Thursdays from nine A. M. to one P. M. The hours for Course 19 will be announced later.

### Notes

*Students should give careful attention to the following statements:*

The elective lists for the Fall Term are enclosed with this circular. Students must make their elections and return the lists to the Registrar's office on or before Wednesday, September 11.

In making elections students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructor.

The arrangement of the Freshman schedule will be announced at the beginning of the term.

No Sophomore will be allowed to elect a study in Group 6 as the required Gymnasium Work will be placed there during the Second Term.

Sophomores who have taken Rhetoric 2, 3, 4, and Elocution, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Candidates for admission to the Freshman class should present their certificates of entrance when they appear for registration.

Students wishing to register for special courses are requested to meet the Committee on Special Students at the Registrar's office on Saturday, September 14, or Monday, September 16.

Candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1895.

All who desire to take Honor Courses during the First Term must send a written application, countersigned by the Professor, to the Chairman of the Committee on Honor Courses, on or before October 15, 1895.

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BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

ACADEMIC YEAR

1896-97

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1896



# BROWN UNIVERSITY

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1896-97

The Academic Year begins Wednesday, September 16, with Chapel Service at 8.40 A. M. At the close of this, the classes will begin their sessions according to the Schedule.

Students report at the Registrar's office on Monday, September 14, or Tuesday September 15, for registration. All students registering, or in any way changing their registration after Wednesday, September 16, will be charged a fee of five dollars each.

Students wishing to register for special courses must report to the Committee on Special Students at the Registrar's office on Saturday, September 12, or Monday, September 14.

Students delinquent in the studies of preceding years will report at the Registrar's office on Monday morning, September 14, at 9 A. M., where will be posted the Schedule of Delinquent Examinations for Monday and Tuesday. Attention is called to the rules governing such examinations given on page 176 of the Catalogue for 1895-96. Students absent from these delinquent examinations will be charged a fee of two dollars for each subsequent examination.

Examinations for admission to the Freshman Class will be held in Rhode Island Hall, beginning Monday, September 14, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 14 and 15. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

## GRADUATE INSTRUCTION

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the degree of Master of Arts and Doctor of Philosophy. Further particulars may be found in the current Catalogue.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., B. P., B. S., M. E. and C. E. will be in the main as stated in the Catalogue for 1895-96. The following paragraphs mention only those courses in which changes occur.

NOTE. By thoroughly pursuing the proper college courses a student for Law, Medicine or Theology may save a year in the professional school.

### Philosophy

The principal feature of the work in this department next year is a very important one. There will be carried through the year an extremely valuable, wholly new, course 36, 37, 38 in Philosophical Introduction, calculated to give a general view of the subject to any not wishing to pursue it further, and at the same time to form an admirable preparation for deeper and wider study where pupils are aroused to desire such. The nature of philosophical as distinguished from ordinary and from scientific thinking will be set forth. The various general departments of philosophical study will be mapped out and described and the main problems of philosophy proper will be stated with the typical solutions of each.

Professor Everett will conduct this course the first term and Professor Delabarre the second. The President is expected to conduct it the third. Three hours. Elective for Juniors.

The President's courses, 6 and 15, Practical Ethics, will, it is expected, be given together, during the third term, forming a single six-hour course. The subjects handled will be much as heretofore, yet the course will be in effect a new one, re-arranged and entirely re-written.

All Professor Delabarre's work will proceed as heretofore, with the single exception that his course in philosophical authors, 11, 12, 13, will this year be merged in the general course in the history of philosophy, given by Professor Everett. In the introductory laboratory course 4, Professor Delabarre will be assisted by Mr. Boodin.

The usual course in the history of philosophy 8, 9, 10, will be taught by Professor Everett. It will continue through the entire year. Professor Everett will likewise conduct the Philosophical Seminary, 14,

through the year. He will also present a course, 5a and 5b in Theoretical Ethics during the first two terms of the year, and a course 5c in the Philosophy of Religion during the third term. These are three-hour courses, elective for Seniors and graduates.

John E. Boodin, A. M., has been made Instructor in Philosophy. He will assist Professor Delabarre in course 4; will teach the third term class in Logic, which for this year has been made an elective study, open to Juniors; and will present during the second term an interesting and valuable course in the History and Science of Religion, as follows:

26. Science of Religion. The Content of the Religious Consciousness in the light of its Development. Based on P. D. Chantepie De La Saussaye's Manual of the Science of Religion, with discussions and lectures. Three hours. Second Term. Elective for Seniors and graduates.

This course offers an excellent preparation for Professor Everett's course 5c, and should be elected by all who desire to take the latter.

Courses 11, 12, 13; 17, 18; 16; 25; 34 and 35, will not be offered this year.

### Pedagogy

The Conference in Pedagogy will be omitted in 1896-97. The following new courses will be given:

4, 5, 6. Seminary in Pedagogy. Subjects: Herbartian Pedagogy, Child Study including the period of Adolescence, School Hygiene, Educational Values. Two hours. Through the year. Open to Student-teachers and by special permission.

7, 8, 9. Seminary in Methods. With the collaboration of experienced teachers methods will be studied in Discipline, Latin, Greek, French, English, History, Mathematics, Physics, Chemistry. Two hours. Through the year. Open to Student-teachers and by special permission.

10, 11, 12. Problems in Practical Teaching. Under guidance and instruction the control and conduct of classes. Plans for single lessons and for "Method-wholes." Teaching under Observation. Observation of the work of experienced teachers. Reports, Private conferences. Thesis upon some practical question of educational work. Seminary once a week. Through the year. Open to Student-teachers.

### Greek

Courses 7-9, 13-15, 17, 20, 25-33 will not be given in 1896-97. The following changes and additions are proposed in the electives for Sophomores, Juniors and Seniors:

4. Plato and Lucian. The *Protagoras* or *Phædo* of Plato and the *Vera Historia* of Lucian. Other selections from both authors. Three hours. Second Term. Elective for Sophomores.

16. Aeschylus and Aristophanes. Agamemnon and Persians of Aeschylus; Frogs and Wasps of Aristophanes. Aristophanes' Apology (Browning). The development of the Greek Drama: The Greek Theatre. Three hours. First Term. Elective for Juniors, Seniors and graduates.

PROFESSOR ALLINSON

18. Sophocles (entire). Euripides (selections). Three hours. Third Term. Elective for Juniors, Seniors and graduates. This course may be given in connection with the seminary work.

PROFESSOR ALLINSON

37, 38, 39. See "Philology" 1, 2, 3. Two hours first term. One hour second and third terms.

PROFESSOR ALLINSON

40, 41, 42. Homer and Mycenaean Archaeology. The Iliad will be read in connection with Tsountas and Manatt's *Mycenean Age*. Three hours. Through the year. Primarily for graduates.

PROFESSOR MANATT

43. Advanced Greek Composition. This course is adapted for those who are intending to teach or otherwise specialize upon the classics.

One hour. First Term.

PROFESSOR ALLINSON

Greek Seminary. The centre of work in the Greek Seminary will be alternately (a). The Private Speeches of Demosthenes, in connection with contemporary historical inscriptions. (Professor Manatt). (b). The Dramatists, Aristophanes and Comic Fragments (Professor Allinson). Two hours through the year.

10, 11, 12. The Orators. The course for this year will be confined to Demosthenes and his contemporaries and may be concentrated in two terms. In connection with the speeches, the actual government of Athens in the Fourth Century will be studied in Aristotle's *Constitution* and historical inscriptions of the period. Three hours. Elective for Juniors and Seniors.

PROFESSOR MANATT.

### Roman Literature and History

Courses 7, 8, 9; 10, 14, 15; 19, 20, 21; 25, 26, 27 will be replaced during the coming year by courses 11, 12, 13; 16, 17, 18; 22, 23, 24; 28, 29, 30.

### Classical Philology

Dr. Linscott's courses will be omitted and the following will be offered by Professor Allinson.

1. A general introduction on the relation of the Greek and Latin to the other members of the Indo-European family of languages: the life

and growth of language. Introduction to Comparative Grammar of Greek and Latin. Two hours. First Term. Elective for Juniors, Seniors and graduates.

2, 3. Greek and Latin Comparative Philology. One hour. Second and Third Terms.

4, 5. Sanskrit. Elementary Course. Perry's Sanskrit Primer; Whitney's Grammar; Lanman's Reader. Two hours. Second and Third Terms. Elective for Juniors and Seniors.

6. Sanskrit. An advanced course in Vedic literature will be offered to Seniors and graduates in 1897-8.

## The Fine Arts

Hereafter the courses in the History of Art numbered 10, 11, and 3 (Vitruvius, Greek and Roman Sculpture from the sources, Pausanias), will be offered primarily to graduates. Seniors and Juniors who satisfy the professor that they read Greek and Latin easily and that they are otherwise suitably prepared may be admitted to these courses.

### Architecture

1, 2. The Orders. Rendering in line and in washes. Three hours, one hour lecture and recitation, four hours drawing. Second and Third Terms. Elective for those who have passed in Drawing 7.

MR. ISHAM

Those who have completed Course 2 may elect one, either A or B, (but not both) of the following groups :

#### *Group A*

6, 7, 8. Design. Problems for solution. Preliminary sketches submitted for approval. Final drawings, plans, elevations, sections and perspectives rendered. Criticism. Three hours, one hour lecture and recitation, four hours drawing. Through the year. Elective for those who have passed in Course 2.

12, 13, 14. Advanced Design. Continuation of Course 8. Advanced problems. Sketches and final drawings. Three hours, one hour lecture and recitation, four hours drawing. Through the year. Elective for those who have passed in Courses 6, 7, 8.

#### *Group B*

9, 10, 11. Historic. Drawing of historic examples from data indicated by instructor. Greek, Roman and Byzantine work. Plans and elevations. Three hours, one hour lecture and recitation, four hours drawing. Through the year. Elective for those who have passed in Course 2, and who take History of Art 1, 4, 6.

29, 30, 31. Historic. Continuation of Course II. Romanesque, Gothic and Renaissance work. Three hours, one hour lecture and recitation, four hours drawing. Elective for those who have passed in Courses 9, 10, 11.

Both group A and group B, as well as the following courses, are open to graduates and special students.

20, 21, 22. History of Ornament. Study of nature and development of ornament with reference to architectural design and to decoration. Three hours, one hour lecture and recitation, four hours drawing. Through the year. This course is valuable to all designers. Elective for graduates and special students.

For graduates and special students, special courses in Colonial Architecture, the History of Church Planning, or other subjects, are arranged whenever a sufficient number of students apply for instruction and the time of the instructor permits.

Courses 17, 18, 19 have been withdrawn.

### Music

During the first two terms Mr. Ashton will offer the following courses:

Music 10, 11. The History and Structure of Music. Three hours. Elective for Juniors, Seniors and graduates.

This is an introductory and general course, the aim of which is to offer an opportunity of acquiring a large and intelligent appreciation of the masterpieces of the tone-world. The characteristic forms,—the fugue, the oratorio, the opera, the song, etc.—and the methods of musical composition will be described and illustrated. The history of music will be traced from the earliest times to the present, the musicians and monumental works of the present century receiving the most extensive consideration.

Music 1, 2. Harmony and Harmonization. Three hours. Elective for Sophomores, Juniors and Seniors.

Music 4, 5. Harmonic and Contrapuntal Analysis and Canon. Three hours. Elective for Juniors and Seniors who have taken Music 1, 2, 3.

### Biblical Literature and History

The following new courses will be offered: Hebrew 8. Hebrew Messianic Prophecy, based on the Revised Version. Systematic classification and interpretation of the Messianic prophecies in the light of (1) their historical setting and (2) their fulfilment. Three hours. First Term. Elective for Juniors, Seniors and graduates. No knowledge of Hebrew is required for this course.

Syriac 1. The Elements. Wilson's Manual. Three hours. First Term. Elective for Seniors and graduates.

New Testament Language and Literature 5. The Gospel of John. Critical translation. Study of its characteristics, aim, teachings and the question of date and authorship. Three hours. First Term. Elective for Juniors, Seniors and graduates.

Hebrew 1, 2, 3 will be conducted by Mr. B. J. Rees.

Hebrew 4 will be given during the First Term, and will cover Isaiah XL—LXVI.

Assyrian 1, 2, 3 will be given as a three hour course during the First Term.

The following courses will not be given during 1896-7:

Hebrew 5, 6, 7; Arabic 1, 2, 3; Assyrian 4, 5; New Testament Language and Literature 1, 2, 3, 4.

### Rhetoric and Oratory

The required courses in Rhetoric will remain the same as last year. Rhetoric 27, 28, 29, *Oral Discussion*, will be limited to twenty members. Preference will be given to graduates and Seniors, but should there be any vacancies Juniors may be admitted. On account of the limitation in numbers those who wish to take the course should inform Professor Lamont as early as possible.

Professor Lamont will offer the following new course :

Rhetoric 5, 6, 7. English Composition for teachers. Exercise in the various kinds of composition. Criticism and discussion with special reference to the needs of those preparing to teach. Three hours. Through the year. Advanced course open to a limited number of graduates and Seniors.

Rhetoric 30, 31, 32 will not be given in 1896-97.

### English

As stated in the catalogue the following courses will not be given in 1896-97. 13, 14, 15; 46, 47, 48; 18, 19, 37. In place of these courses will be offered 24, 25, 26; 34, 35, 36; 43, 44, 45; 20, 21, 22.

Mr. Dodge's course 40, 41, 42 will be divided into two courses to be given in alternate years, 53, 54, 55 being given in 1896-97, and covering English literature from Wyatt to the death of Spenser, exclusive of the drama. Elective for students who have passed in 1, 2, 3, or its equivalent, and in 4, 5, 6.

### History

History 3, and 15 will be given, and History 11 and 16 omitted in the third term.

### Social and Political Science

Political Science 5 will be open to those who have taken course 1 and to graduates.

Social Science 5 will be open to Seniors and graduates.

Social Science 10 will be omitted.

Courses 1, 2, 3, in Elementary Law will be given during 1896-97.  
Courses 4, 5, 6, will be omitted.

### **Political Economy**

The following new courses will be offered :

7. Questions of Economic Policy. A consideration of the main elements of strength and weakness in the existing economic organization, and of some of the more important schemes for modifying it. Three hours. First Term. Elective for those who have completed course 1, 2, 3.

8. Socialism, based on a critical study of Karl Marx's Capital. Three hours. Second Term. Elective for those who have completed course 1, 2, 3.

9. Methods of Economic Investigation with special reference to Statistics. Three hours. Third Term. Elective for those who have completed course 1, 2, 3.

### **Germanic Languages and Literatures**

The following courses will not be given in 1896-97 :

Swedish 1, 2, 3; Dano-Norwegian 1, 2, 3. Dutch 1, 2, 3; 4, 5, 6. Old Norse 4, 5, 6. Old Saxon 1, 2, 3. German 40, 41, 42; 43, 44, 45; 19, 20, 21; 34, 35, 36; 28, 29, 30; 31, 32, 33.

### **Romance Languages and Literatures**

The following courses will be omitted in 1896-97 :

French 33, 34, 35; 16, 17, 18; 25, 26, 27. Italian 16, 17, 18. Spanish 4, 5, 6; 7, 8, 9.

French 13, 14, 15; 21, 31, 32; Italian 7, 8, 9; and 13, 14, 15, will be offered as three-hour courses.

Professor Langdon will conduct French 21, 31, 32 and Mr. Johnson will have charge of French 4, 5, 6.

### **Pure Mathematics**

Course 30 will replace course 11 during the coming year.

Attention is also called to the alternation in the graduate courses as stated in the catalogue.

### **Drawing**

Course 2, 3, 4, will be devoted to outline and shade in pencil.

Course 24, 25, 26, will not be given, the following being offered in its place :

32, 33, 34. Freehand Drawing. Continuation of course 23. One hour. Two hours drawing. Through the year. Elective for those who have passed in course 23.

Courses 10, 11 (Advanced Machine Drawing), 12 (Elementary Machine Design), and 27 and 28 (Advanced Machine Design) will be modified so as to consist of one hour recitation and four hours drawing, counting as heretofore as a three-hour course.

## Mechanical Engineering

### Workshop Courses

Professor Burnham will supervise the workshop courses during the coming year. Those who desire to elect them are requested to note that definite practice pieces will be required to be finished in each course and that definite hours for each course are assigned in the time schedule. The work formerly taken under courses 10, 11, 12, 13, 14, 15 and 16 will be re-arranged as follows :

10, 11, 12. Woodwork. Second, Third and First Terms respectively. Three hours, six hours' attendance. These courses will include carpentry, woodturning and patternmaking. Required of candidates for the degree of Mechanical Engineer. Elective for a limited number of other students having the requisite skill.

MR. LESTER

13, 14, 15, 16. Metalwork. Second, Third, First and Second Terms respectively. Three hours, six hours' attendance. These courses will include chipping, filing and machine work. Required of candidates for the degree of Mechanical Engineer. Elective for a limited number of other students having the requisite skill.

MR. STARK

17. Woodwork. Elective during any one term for Sophomores, Juniors and Seniors. Three hours, six hours' attendance. This course is intended for those who take only one term of woodwork.

MR. LESTER

18. Metalwork. Elective during any one term for Sophomores, Juniors and Seniors. Three hours, six hours' attendance. This course is intended for those who take only one term of metalwork.

MR. STARK

While the foregoing courses are open to all students having the requisite skill, only two of them can count towards the degree of Bachelor of Arts, Bachelor of Philosophy or Bachelor of Science.

## Physics

11. Electrical Engineering. Fundamental principles. General design and calculations of continuous current machinery. Text and reference books :—Thompson's Elementary lessons in Electricity and Magnetism. Thompson's Dynamo Electric Machinery, 1st half. Three hours. First Term. Elective for those who have passed in Physics 10 and Mathematics 12.

MR. WATSON

12. Course 11 continued. Alternating current machinery. Text and reference books :—Thompson's Dynamo Electric Machinery, 2nd half. Thompson's Polyphase Electric Machinery. Fleming's Alternating Current Transformer. Bedell & Crehore's Alternating Currents. In both courses practical engineering problems will be discussed. Three hours. Second Term. Elective for those who have passed in Physics 11 and Mathematics 13.

MR. WATSON

15. Laboratory course in Electrical Engineering. General methods of testing and using electrical machinery. Determination of output and efficiency of various dynamos and motors, both for continuous and alternating currents. The laboratory is well equipped with apparatus for this purpose. Three hours, six hours of attendance. Third Term. Elective for those who have passed in Physics 11 and 12.

MR. WATSON

26, 27, 28. Lectures on the Mathematical Theory of Electricity and Magnetism. Three hours. First, Second and Third Terms. Elective for graduates and Seniors who have passed in Physics 10 and Mathematics 16. Offered this year in place of courses 13, 14, 16.

PROFESSOR PALMER

29, 30, 31. Advanced Physics. Lectures on dynamics and potential, elastics, hydrostatics and hydrodynamics, viscosity and capillarity, electrostatics, magnetism, electromagnetism, induction, Fresnel's optics, the electromagnetic theory of light, thermal analytics and thermodynamics. Elective for Juniors, Seniors and graduates who have passed in Mathematics 12, 13 and 14. Three hours. Through the year. These lectures are intended to furnish an introduction to modern theoretical physics and the course as a whole is to be completed in two years.

PROFESSOR BARUS

Course 3 will be discontinued.

## Astronomy

During the absence of Professor Upton the courses in this department will be conducted by Professor F. W. Very.

## Comparative Anatomy

[*Medical Preparatory Course*]

15. 1. Practical Vertebrate Dissection. Four hours, six hours' attendance. First and Second Terms. Elective for Freshmen, Sophomores and others who wish to prepare themselves for the more advanced courses. Course 15 is a laboratory course in the Anatomy and Histology of the Frog, course 1 the Anatomy of the Cat.

MR. GORHAM

2. Invertebrate Dissection. Four hours, six hours' attendance. Third Term. Elective for Freshmen who have taken 15 and 1.

PROFESSOR BUMPUS

Students will please observe that courses 15, 1 and 2 are introductory and must be taken before the more advanced work. (Exception will be made in '96-97 in favor of those who have creditably passed in courses 12, 6, 21.) Those who intend to subsequently elect Comparative Anatomy 18, 19, 20 should, at the beginning of the Sophomore year, elect Chemistry 1 as five terms of Chemistry are prerequisite.

3, 4. Comparative Anatomy of Vertebrates. Three hours. First and Second Terms. Elective for Sophomores and others who have taken 15, 1 and 2 or 12, 6 and 21.

PROFESSOR BUMPUS

10. Normal Histology and Micro-Technique. Three hours, six hours' attendance. Third Term. Elective for Sophomores and others who have creditably passed in courses 3 and 4.

MR. GORHAM

16, 17. Anatomy of the nervous system. Three hours. First and Second Terms. Elective for Juniors and Seniors who have creditably passed in 3 and 4.

PROFESSOR MEAD

18, 19, 20, 21. Physiology. Three hours, six hours' attendance. Course 18 begins in the Third Term. Elective for Juniors and Seniors who have taken Qualitative and Quantitative Analysis. Courses 19, 20 and 21. First, Second and Third Terms. Elective for those who have creditably passed in Comparative Anatomy 18.

MR. TOWER

9. Bacteriology. Lectures and Demonstrations of the various methods of bacteriological research, together with practical exercises. Three hours, six hours' attendance. Second Term. Elective for Juniors and Seniors who have passed in Comparative Anatomy 10.

MR. GORHAM

8. Comparative Embryology. Three hours, six hours' attendance. Third Term. Elective for Juniors and Seniors who have creditably passed in 3 and 4 or 16 and 17.

PROFESSOR MEAD

The following table is designed to indicate the regular sequence of the courses. Departure from this order can only be made by the consent of Professor Bumpus, who will be pleased to answer any communications.

	<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
<i>First Year</i>	Comp. Anat. 15	Comp. Anat. 1	Comp. Anat. 2
<i>Second Year</i>	Comp. Anat. 3 [Chemistry 1]	Comp. Anat. 4 [Chemistry 2]	Comp. Anat. 10 [Chemistry 3]
<i>Third Year</i>	Comp. Anat. 16 [Chemistry 4]	Comp. Anat. 17 [Chemistry 5]	Comp. Anat. 18
<i>Fourth Year</i>	Comp. Anat. 19	Comp. Anat. 9 Comp. Anat. 20	Comp. Anat. 8 Comp. Anat. 21

### Botany

Courses 4, 5, 6; 7, 8 will be omitted during 1896-97.

### Military Science and Tactics

1, 2, 3. Practical Exercises. Infantry and Artillery, small arms target practice. Two hours. First and Third Terms. One hour. Second Term. Required of first year men. Elective for Sophomores, Juniors and Seniors.

4, 5, 6. Systematic and Progressive Instruction. Recitations and lectures in drill regulations, army regulations, preparation of army reports and returns, organization and administration of the United States army, elements of military science, field fortifications, elements of military engineering, military hygiene, military law, signaling and a thesis on a military subject. Three hours, (two of which are devoted to practical application of theory). Through the year. Elective for Sophomores, Juniors and Seniors.

## Notes

*Students should give careful attention to the following statements:*

The Time Schedule and elective lists for the Fall Term are enclosed with this circular. Students must make their elections and return the lists to the Registrar's office on or before Wednesday, September 9.

In making elections students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructor.

Students entering for the B. P. or B. S. degree, are requested to note the options offered in the Freshman courses as stated on pages 48 and 53 of the current catalogue.

Sophomores who have taken Rhetoric 2, 3, 4, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Candidates for admission to the Freshman class should present their certificates of entrance when they appear for registration.

Candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1896.

On June tenth copies of the following notice were distributed to the holders of room contracts for the ensuing year. Attention is again called to the rules mentioned and to the fact that they are now in force. These rules apply to members of the entering class as well as to upper classmen.

JUNE 10, 1896.

According to a recent vote of the Advisory and Executive Committee of the University, every student renting a College room for a year must either pay the whole year's bill for rent, heat, and service, at or before his registration for the first term of the year; or else deposit with the Registrar at or before such first registration a satisfactory bond in the sum of \$250.

This regulation takes effect at once.

F. T. GUILD, *Registrar.*

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897/98

# BROWN UNIVERSITY

ANNUAL

# ANNOUNCEMENT

ACADEMIC YEAR

1897-98

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1897



# BROWN UNIVERSITY

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1897-98.

The Academic Year begins Wednesday, September 15, with Chapel Service at 8.40 A. M. At the close of this, the classes will begin their sessions according to the Schedule.

Students report at the Registrar's office on Monday, September 13, or Tuesday September 14, for registration. All students registering, or in any way changing their registration after Wednesday, September 15, will be charged a fee of five dollars each.

Students wishing to register for special courses must report to the Committee on Special Students at the Registrar's office on Saturday, September 11, or Monday, September 13.

Students delinquent in the studies of preceding years will report at the Registrar's office on Monday morning, September 13, at 9 A. M., where will be posted the Schedule of Delinquent Examinations for Monday and Tuesday. Attention is called to the rules governing such examinations, given on page 183 for the Catalogue of 1896-97. Students absent from these delinquent examinations will be charged a fee of two dollars for a subsequent examination.

Examinations for admission to the Freshman Class will be held in Rhode Island Hall, beginning Monday, September 13 at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 13 and 14. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

## GRADUATE INSTRUCTION

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the degree of Master of Arts and Doctor of Philosophy. Further particulars may be found in the current Catalogue.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., B. P., B. S., M. E. and C. E. will be in the main as stated in the Catalogue for 1896-97. The following paragraphs mention only those courses in which changes occur.

**NOTE.** By thoroughly pursuing the proper college courses a student for Law, Medicine or Theology may save a year in the professional school.

### Philosophy

The following changes will be made in the courses offered in the Philosophical Department:

19. *Logic.* This will be given in the Third Term by Dr. Meiklejohn, and will be required of all Juniors who have not taken the course in Philosophical Introduction, or the course in Psychology.

36, 37, 38. *Philosophical Introduction.* This course will be given through the year; but it is possible that 38 may be made identical with 19 the Third Term.

2, 3, 4. *Psychology.* This will be made a unitary course of three hours, extending through the year, instead of through two terms only, as heretofore. The laboratory work previously given in course 4, will be partly introduced within this course, and partly reserved for course 29.

20, 21, 22 will be given as usual.

29, 30, 31. *Advanced and Original Experimental work in the Psychological Laboratory.* This will be made a three hour course, through the year. It may be taken under advisement to count for more than one course. The laboratory facilities are to be increased, and special attention given to training in experimental methods, and to original research. Professor Delabarre will be assisted in this course by Dr. Meiklejohn.

11, 12, 13 will not be offered.

26 will no longer be offered.

33, 34, 35. *The Kantian System of Philosophy*; together with its development out of preceding and into subsequent philosophical thought. Elective for Seniors and Graduates. Three hours. Through the year. Offered by Dr. Meiklejohn.

### Pedagogy

Charles E. Dennis, Jr., Ph. D., has been appointed instructor in Pedagogy. He will conduct the course in the History of Educational Theories and Institutions, and will assist in the Seminaries in Methods.

### Greek

In place of the courses mentioned in the Catalogue the following are given:

4. *The Attic Orators.* Select speeches of Antiphon, Andocides and Isaeus (from Jebb's Selections) and the Third Philippic of Demosthenes. Parallel reading: Jebb's Attic Orators, Brougham's Dissertation on the Eloquence of the Ancients, etc. Three hours. First Term. Elective for Sophomores.

PROFESSOR MANATT.

5. *Lucian and Aristophanes.* Lucian's *Vera Historia*. Aristophanes's Clouds with rapid reading of other plays and selections from Lucian. Three hours. Second Term. Elective for Sophomores.

PROSESSOR ALLINSON.

6. *The Greek Drama.* Prometheus and Antigone with reading to the class from the text of several other plays. Lectures on the Greek Drama. Three hours. Third Term. Elective for Sophomores.

PROFESSOR ALLINSON.

16. *Plato and the Greek Drama.* (a.) The Republic of Plato, Books I-X: selections for critical reading, and the remainder in outline or rapid reading from the text to the class. (b.) The Agamemnon of Aeschylus with rapid reading of other plays. Three hours. First Term. Elective for Juniors and Seniors.

PROFESSOR ALLINSON.

17. *Greek Tragedy.* Sophocles: The Ajax and Electra, in the original, the other plays interpreted by the instructor or read in English. History of the Drama and Archaeology of the Greek Theatre. Three hours. Second Term. Elective for Juniors and Seniors.

PROFESSOR MANATT.

18. *Greek Tragedy*, continued. Euripides: The Alcestis and Iphigenieia in Aulis (or Bacchae) in the original; other plays interpreted to the

class or read in English. [For this may be substituted a course in Homer or Theocritus.] Three hours. Third Term. Elective for Juniors and Seniors.

PROFESSOR MANATT.

44, 45. *Greek Composition.* Practice in prepared and extemporaneous writing of Greek. Elective for Sophomores, Juniors and Seniors. One hour. Second and Third Terms.

PROFESSOR ALLINSON.

### GRADUATE WORK OPEN TO APPROVED SENIORS

25, 26. *Aristotle:* The *Polity of the Athenians* and the *Politics.* First and Second Terms. Two hours.

PROFESSOR MANATT.

34, 35, 36. *Greek Seminary.* First Term. Interpretation of *Theocritus.* One two-hour session a week. Third Term. Interpretation of *Aristophanes.* One two-hour session a fortnight.

PROFESSOR MANATT.

### Roman Literature and History

The following changes will be made in the courses offered by Professor Harkness :

In place of 10, 14, 15 there will be given 31, 32, 33, Roman Architecture and Topography illustrated by photographs, slides, etc. One hour through the year. Elective for Juniors, Seniors and graduates.

In place of 19, 20, 21, the seminary courses for graduates will be 34, 35, 36, Roman Provincial Administration. Readings from Cicero's Orations against Verres. Two hours through the year. Elective for Graduates.

The following new course will be offered :

37, 38, 39. *Latin Composition.* One hour through the year. Elective for Sophomores, Juniors and Seniors.

### The Fine Arts

Course 10, 11, 3 will not be open as an elective during 1897-98.

### Music

Courses 6, 7, 8, 9 will be omitted in 1897-98.

Course 24, sacred music, will be offered in the Third Term.

Course 10, 11, 12, The Structure and History of Music, is a course in musical appreciation. The characteristic forms—the fugue, the sonata,

etc.—and the methods of composition are described and illustrated, and the history of music is traced from the earliest times to the present, the musicians and the monumental works of the present century receiving extensive consideration.

### Architecture

The following changes will be made:

Courses 9, 10, 11, and 29, 30, 31 will be withdrawn and in place of them the two following courses wil be offered:

32, 33, 34. *Domestic.* A study of the house, palace and castle in France, England and the English colonies in America. Illustrated lectures, recitations and reading. Three hours. First, Second and Third Terms respectively. Elective for those who have taken or who are taking History of Art 1, 4 and 6.

No drawing is required, though the ability to draw, both free hand and to scale, will be found very useful. A reading knowledge of French is also an advantage.

This course, given in 1897–98, alternates with the following, offered in 1898–99.

35, 36, 37. *Ecclesiastical.* A study of church building since A. D. 1000 in France, England and the English colonies in America. Three hours. Methods and conditions the same as in the preceding course.

There will be no other changes.

### Indo-European Philology

During 1897–98 the work will be:

4, 5, *Sanskrit.* Elementary course. Perry's Primer; Whitney's Grammar; Lanman's Reader begun. Three hours. First and Second Terms. Elective for Juniors and Seniors.

6. *Sanskrit.* Advanced course. Lanman's Reader continued. Selections from the Vedas. Open to those who have completed course 1 or an equivalent. Not given in 1897–98.

1. General Introduction to the Study of Language. The relation of Greek and Latin to the other members of the Indo-European family of languages. The life and growth of language. Intended for students of the Classics, English, German or Romance languages. Three hours. Third Term. Elective for Juniors and Seniors.

7. Comparative Philology. Seminary course for graduates only. Third Term. This course may not be given in 1897–98.

## Biblical History and Literature

### Hebrew

1. *Elementary Hebrew.* Harper's Manual and Elements. Three hours. First Term. Elective for Juniors, Seniors and graduates.
2. *Elementary Hebrew* (continued). Reading of Genesis III-VIII. Three hours. Second Term. Elective for Juniors, Seniors and graduates.
3. *Historical Hebrew.* Rapid reading of selected passages from the Books of Samuel. Driver's Notes and Harper's Elements of Hebrew Syntax. Three hours. Third Term. Elective for Juniors, Seniors and graduates.
- 9, 10. *The Book of Psalms.* Critical translation and analysis as a basis for the study of Hebrew poetry and devotional literature. One hour. First and Second Terms. Elective for Juniors, Seniors and graduates.

### Aramaic

- 1, 2. *Biblical Aramaic.* Translation of the Aramaic portions of Daniel and Ezra. Two hours. First and Second Terms. Elective for Juniors, Seniors and graduates.

### Syriac

1. *Elementary Syriac.* Wilson's Manual. Three hours. Third Term. Elective for Juniors, Seniors and graduates.

### Assyrian

- 1, 2. *Elementary Assyrian.* Lyon's Manual. Two hours. First and Second Terms. Elective for Juniors, Seniors and graduates.
3. *Historical Assyrian.* Delitzsch's Assyrian Grammar and Abel and Winckler's Keilschrifttexte. Two hours. Third Term. Elective for Juniors, Seniors and graduates.
- 4, 5, 6. *Assyrian Seminary.* Rapid reading of historical and religious inscriptions. Meets once a week throughout the year. Open only to advanced Semitic students.

## New Testament Language and Literature

1. *The Gospel of Mark.* Critical translation. Study of the peculiarities of Hellenistic Greek. Three hours. First Term. Elective for Juniors, Seniors and graduates.
6. *The Gospel of Matthew.* Rapid reading. Analysis and translation in the light of the history. Three hours. Second Term. Elective for Juniors, Seniors and graduates.

7. *The Book of Acts.* Interpretation and analysis of its structure. Three hours. Third Term. Elective for Juniors, Seniors and graduates.

### Biblical Literature in English

1, 2. *History of the Jewish People.* From the Babylonian Exile to the Conquest by the Romans. Study of the literature of the period in the light of the historical background. Three hours. First and Second Terms. Elective for Sophomores, Juniors and Seniors.

3. *History of New Testament Times.* Investigation of political, social and religious conditions in Palestine at the beginning of the Christian era. Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

### Rhetoric

In the courses in Rhetoric the following changes will be made:

Rhetoric 2, 3, 4 will no longer be elective for Freshmen who are candidates for the degree of Bachelor of Philosophy or Bachelor of Science, but will be required of all Freshmen except candidates for the degree of Bachelor of Arts.

Rhetoric 5, 6, 7 will be dropped.

Rhetoric 16, 17, 18, an advanced course, will be conducted by Professor Lamont. Instead of daily themes, there will be longer pieces of more careful composition. During the first term the class will study the style of some of the masters of English prose. During the second term a number of themes will be joined in an organized series devoted to one topic. The course will be open to all who have passed 2, 3, 4.

In Rhetoric 27, 28, 29 more attention will be given than heretofore to the structure of arguments in the form of briefs. The course will be limited to sixteen members. Seniors and graduates will be preferred, but should there be any vacancies, Juniors will be admitted. Those who wish to take this course are requested to notify Professor Lamont.

### English

The absence of Professor Manly necessitates the rearrangement of a part of the work. The following is a full list of the courses that will be offered:

English 10, 11, 12. Dr. Small.

English 27, 28, 39. Mr. Frost.

English 1, 2, 3. Professor Bronson.

English 4, 5, 6 will be temporarily replaced by another course in Shakespeare, in charge of Mr. Dodge. This new course (60, 61, 62) will deal especially with questions of literary and dramatic art as exhibited in a con-

siderable number of the plays. Only so much linguistic interpretation will be done as is strictly necessary to the understanding of the text.

English 56, 57, 58, conducted by Mr. Dodge, will include Spenser, Bacon and Milton. A term will be devoted to each author, with perhaps a glance at two or three of his chief contemporaries. The principal works of each author will be studied carefully in more or less detail. Though the courses deal with three consecutive periods and form a connected series, any one may be elected separately.

English 31, 32, 33. Mr. Dodge.

English 46, 47, 48. Professor Bronson.

English 50, 51, 52. Professor Bronson.

English 18, 19, 37 will be conducted by Professor Lamont. The history of English prose fiction from Sir Thomas Malory to George Eliot will be studied. The novel will be considered as a literary type and as an expression of contemporary life and thought. Students who cannot devote ten hours a week to reading should not elect the course.

English 16, 17, 38. Professor Sears.

For conditions of admission to these courses, students are referred to the Catalogue.

The following courses not offered in 1897-98, will be offered in 1898-99: 13, 14, 15; 4, 5, 6; 34, 35, 36; 53, 54, 55; 43, 44, 45.

The following offered in 1897-98, will not be offered in 1898-99: 46, 47, 48.

## History

It is not certain whether History 4, 5, 6 will be conducted by Professor Jameson or by Dr. Burnett. It is expected that this course will not be given in 1898-99, but will alternate with a course to be defined hereafter.

Among graduate courses, History 13 will be given and History 17 omitted. History 12 will consist, in the first term, of a critical study of the reign of Charlemagne, conducted by Dr. Dealey; in the ensuing terms, of a study of the earliest period of English history, with dissection of Green's *Making of England*, conducted by Professor Jameson. History 14 will consist, in the first term, of a study of the finances of the Colonies, conducted by Dr. Jameson; in the second and third terms it will be conducted by Dr. Dealey.

## Social Science

During the first term of 1897-98 course 6 will be offered instead of course 5, which will be postponed to the second term. Course 6, Segregation of Population or Municipal Functions and Administration, will be an elective for Seniors and Graduates.

## Political Economy

Political Economy 5 will be given in place of Political Economy 8 in the second term. The course to be given in place of Political Economy 5 in the third term will be announced in the Catalogue for 1897-98.

## German

Courses 1, 2, 3 and 4, 6, 8 will be given as usual.

Professor Williams will offer:

46, 47, 48. Goethe's Faust, Parts I and II. Three hours through the year.

16, 17, 18. Modern German Literature. Three hours through the year.

10, 11, 12. Middle High German. Introductory Epics and Minnesingers. Two hours through the year.

Gothic 1, 2, 3. Two hours through the year,

Old Norse 1, 2, 3. Introductory. Two hours through the year.

These courses are elective as specified in the Catalogue for 1896-97.

## Physics

In Advanced Physics the second part of 29, 30, 31 will be offered; embodying lectures on thermoelectrics, electromagnetics, electrokinetic induction, electric oscillation and Maxwell's optics, Fresnel's optics, thermodynamics, and the analytical theory of heat. Three hours per week, through the year. Elective for those who have passed in mathematics 12, 13, 14.

In General Physics the endeavor will be made to introduce a course, 32, 33, acoustics and optics. Two hours per week. Second and Third Terms. Elective for Juniors and Seniors who have passed Physics, 1, 2, 4. The feasibility of the plan however is at present somewhat in question.

## Free Hand Drawing

Courses 21, 22, 23 and 32, 33, 34 will be withdrawn.

Courses 2, 3, 4 will remain, but will be elective only for those who can meet at the scheduled two consecutive hours.

## Comparative Anatomy

Course 2 will be the equivalent of a four hour elective and will be given during the Spring vacation and the Third Term.

Courses 3, 4 will be elective only for those who have creditably passed in 15, 1, 2; courses 16, 17, for those who have creditably passed in 3, 4, 10;

course 18, for those who have taken Qualitative Analysis; courses 19, 20, 21, for those who have creditably passed in 18; course 8, for those who have creditably passed in 3, 4, 10.

### Botany

1, 2, 3. *Vegetable Morphology, Physiology, and Economic Botany.* Four hours through the year. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy. Open to Sophomores as a three hour elective.

PROFESSOR BAILEY AND MR. METCALF.

4, 5, 6. *Histology and Embryology of Phaenogams.* Three hours, four hours' attendance through the year. Elective for those who have passed in course 1, 2, 3.

MR. METCALF.

7, 8. *Structure and Development of Cryptogams.* Three hours, four hours' attendance. First and Second Terms. Elective for those who have passed in course 6, and during 1897-98 for others by special permission.

MR. METCALF.

12. *Study of the Higher Cryptogams.* Three hours, four hours' attendance. Third Term. Elective for those who have passed in course 8.

PROFESSOR BAILEY AND MR. COLLINS.

13. *Taxonomy of Phaenogams.* Three hours. Second Term. Elective for those who have passed in course 3.

PROFESSOR BAILEY.

14. *Medical Botany.* Three hours. Third Term. Elective for those who have passed in courses 3 and 5.

PROFESSOR BAILEY AND MR. METCALF.

### Notes

*Students should give careful attention to the following statements:*

The Time Schedule and Elective lists for the Fall Term are enclosed with this circular. Students must make their elections and return the lists to the Registrar's office on or before Wednesday, September 8.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructor.

Students entering for the B. P. or B. S. degree, are requested to note that Rhetoric is required during the Freshman year. For options see Catalogue, pages 45 and 46.

Sophomores who have taken Rhetoric 2, 3, 4, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Candidates for admission to the Freshman class should present their certificates of entrance when they appear for registration.

Members of the Senior class who are candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1897.

EVERY STUDENT RENTING A COLLEGE ROOM FOR A YEAR MUST PAY THE WHOLE YEAR'S BILL FOR RENT, HEAT AND SERVICE, AT OR BEFORE HIS REGISTRATION FOR THE FIRST TERM OF THE YEAR; OR ELSE DEPOSIT WITH THE REGISTRAR AT OR BEFORE SUCH FIRST REGISTRATION A SATISFACTORY BOND IN THE SUM OF \$250.

Students are requested to forward their bonds to the Registrar before registration begins, if possible.

Blanks can be obtained at the Registrar's office.

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BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

ACADEMIC YEAR

1898-99

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1898



# BROWN UNIVERSITY

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ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1898-99

The Academic Year begins Wednesday, September 21, with Chapel Service at 8.40 A. M. At the close of this, the classes will begin their sessions according to the Schedule.

All will be glad to know that Professor B. F. Clark, Sc. D., is on his way home from Europe and the Holy Land, in fully restored health, intending to resume his place and work in the University at the opening of the fall term.

Sad in the extreme, on the other hand, is the announcement which must be made here, of the death, during vacation, of Dr. Roscoe A. Small, Instructor in English. His work will be taken up, strongly, by other hands.

It is expected that the professorship vacated by the resignation of Professor Manly will be filled at the September meeting of the Corporation by the election of Albert Knight Potter, A. M., of the Class of 1886, now studying in Leipzig.

All undergraduate students who are candidates for degrees, and all resident candidates for advanced degrees should report at the Registrar's office on Monday, September 19, or Tuesday, September 20 for registration. All undergraduate students registering, or in any way changing their registration after Wednesday, September 21, will be charged a fee of five dollars each.

The Committee on Special Students will meet on Saturday, September 17 and Monday September 19. Applications for registry as special students should be made on or

before these dates. Students from preparatory schools must present letters of commendation from the principals of such schools. All candidates must satisfy the committee and the officers of instruction by examination or otherwise of their fitness to take the courses desired.

Examinations for admission to the Freshman Class will be held in Rhode Island Hall, beginning Monday, September 19, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 19 and 20. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

## GRADUATE INSTRUCTION

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the degree of Master of Arts and Doctor of Philosophy. Further particulars may be found in the current Catalogue.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., Ph. B., Sc. B., M. E. or C. E. will be in the main as stated in the Catalogue for 1897-98. The following paragraphs mention only those courses in which changes occur.

NOTE. By thoroughly pursuing the proper college courses a student for Law, Medicine or Theology may save a year in the professional school.

### Philosophy

The course in Philosophical Introduction will be carried through the year as usual.

Epistemology will probably be taught by Dr. Meiklejohn, who will then incorporate in this course the more elementary matters presented in his course on the Kantian System given last year. In this case the course on the Kantian System will be omitted for the year, unless there should be a considerable demand for it.

Either Professor Delabarre or Dr. Meiklejohn will offer a new course in Inductive Logic and Scientific Evidence.

The following new course will also be offered :

26. Outlines of the History of Religion. The great religious systems of the world will be studied, chiefly in their philosophical aspects. Two hours. Second Term. Elective for Seniors and graduates.

PROFESSOR EVERETT

14. The subject of study in the Philosophical Seminary for 1898-9 will be the history of Scepticism. The chief lines of negative thought will be traced throughout the course of European philosophy, but especial attention will be paid to the various phases of modern scepticism. Two hours. Through the year. Elective for graduates.

PROFESSOR EVERETT

### History

History 7, 8, 9. Instead of a general course in American history continuing through two terms, followed by a special "laboratory" course in the third term, this series will consist of an ampler general course in American history, extending through the whole year. The methods heretofore used with special students in the third term will now be introduced to some extent in all terms; but in the main the work will be like that hitherto performed in History 7, 8. Students desiring an extra hour may pursue History 14, which now counts toward a degree.

The graduate courses given in 1898-99 will be, besides the fortnightly seminary meetings, the following :

History 10. General Principles of Historical Work; Langlois and Seignobos's *Introduction aux Études Historiques*, with practical exercises.

History 12. Practical Course, European. The theme for the year will be the political, diplomatic, naval and military history of the Spanish Armada.

History 14. Practical Course, American (open also to Seniors who are taking History 7, 8, 9). The theme for the year will be the territorial, constitutional and political history of the West, from 1748 to 1821.

History 11 and 16 will be omitted in 1898-99, and History 15 and 3 will be given.

### Social and Political Science

Social Science 6, given during the first term of 1897-8 and repeated the third term, will be omitted during the year 1898-9.

Social, Political and Economic Science A. A general course for those students who desire merely an outline of the field covered by the above subjects. Preliminary to Social, Political and Economic Sciences 1, but not required for entrance to these courses nor counted as admitting to advanced studies in the respective departments. Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

PROFESSORS WILSON, DEALEY AND GARDNER

## Law

Elementary Law 1, 2, 3, will be offered in 1898-99 in place of 4, 5, 6. In addition the following will be offered: Law 7, 8, 9, Contracts. Three hours. Through the year. Elective for Seniors who have completed three courses in Elementary Law.

This course is offered as a part of the technical preparation for the practice of law. Students who do not intend to enter that profession are advised not to elect it. The instruction will be based upon the study of cases.

## Political Economy

1, 2, 3, elementary course, as in catalogue.

4. History of Economic Thought. 3 hours. First Term. Same as in previous years except that attention will be confined to the main writers of the English school (Smith, Malthus, Ricardo, Senior, Mill, Cairnes), the more modern writers being taken up in course 10.

7. Practical economic questions. Three hours. First Term.

10. History of Economic Thought. Three hours. Second Term. This course will deal with the more recent phases of economic thought, particularly the socialist and Austrian schools, and the principal American writers.

6. Money and Banking. Three hours. Second Term.

11. Modern Economic Theory. Marshall's *Principles of Economics* and Hadley's *Economics*. Three hours. Third Term.

5. Public Finance. Three hours. Third Term.

Courses 4, 7, 10, 6, 11, 5, may be taken by Seniors and graduates who have completed 1 and 2.

Courses 4, 10 and 11 taken together will constitute a thorough course in Economic Theory.

In addition to the above, an outline course, open to Sophomores, Juniors and Seniors, will be given during the Third Term in connection with the department of Social and Political Science See Social Science.

## Music

The following courses will be offered during the academic year 1898-99:

Music 1, 2, 3. *Harmony*. Through the year. Elective for Sophomores, Juniors and Seniors. First Term, the construction and connection of chords, the writing of exercises. Second Term, modulation, non-harmonic notes, harmonization of melodies. Third Term, analysis of harmony in compositions by the best writers, the study of melody, the writing of compositions.

Music 14, 15. Second and Third Terms. Elective for Juniors and Seniors.

Music 4, 5, 6, 7, 8, 9, 20, 21, 22. Elective [this year] for graduates. These courses will not be conducted in classes but privately with each student.

### Indo-European Philology

In place of Courses 6, 8, 7, the following will be given:

6. Sanskrit, advanced. Three hours. Third Term. Elective for those who have completed 4, 5 or an equivalent. Lanman's Reader continued. Selections from the Vedic Hymns.

7. Seminary in Comparative Philology. One two-hour session weekly. Third Term. Elective for graduates and qualified Seniors.

### Greek

Electives will be offered in the department as follows:

4. *Attic Orators*. Three hours. First Term. Elective for Sophomores.  
PROFESSOR MANATT.

5. *Lucian*. Three hours. Second Term. Elective for Sophomores.  
PROFESSOR ALLINSON.

6. *Dramatic Poets*. Three hours. Third Term. Elective for Sophomores.

PROFESSOR MANATT.

16. *Herodotus I-V*. Three hours. First Term. Elective for Juniors and Seniors.

Includes a rapid reading of the earlier books of Herodotus, illustrating the connection with Greece and Egypt and Asia.

PROFESSOR ALLINSON.

17. *Thucydides*. Three hours. Second Term. Elective for Juniors and Seniors.

One book will be read entire with selections from the rest. Collateral study of the topography and monuments, of Athenian politics in the Fifth Century, and of the sources of Greek History.

PROFESSOR MANATT.

18. *Thucydides*, continued; or Demosthenes on the Crown (as the class may elect). Three hours. Third Term. Elective for Juniors and Seniors.

PROFESSOR MANATT.

44. Greek Composition, advanced. One hour. Third Term. Elective for Sophomores, Juniors and Seniors.

PROFESSOR ALLINSON.

25, 26. *Thucydides*. One two-hour session weekly. First and Second Terms. For graduates and approved Seniors.

The narrative will be read entire with selections from the speeches; and this will be supplemented by an outline study of Greek History from the

earliest times down to the present day. Special attention will be paid to topography, politics, and historical sources.

**PROFESSOR MANATT.**

34, 35, 36. *Greek Seminary.* One two-hour session weekly, through the year. For graduates and approved Seniors.

First Term—Interpretation of Hesiod. **PROFESSOR MANATT.**

Second Term—Interpretation of Lucian. **PROFESSOR ALLINSON.**

Third Term—Interpretation of Pindar. **PROFESSOR MANATT.**

*or Comparative Philology.* **PROFESSOR ALLINSON.**

**Latin**

Courses 4, 5, 6; 11, 12, 13; 16, 17, 18, 37, 38, 39, will be offered, the other elective courses being omitted.

The following seminary course will be offered:

40, 41, 42, Seminary. Two hours. Through the year. Perseus and Seneca. Special topics for investigation.

**English Literature and Language**

**PROFESSOR BRONSON** will give courses, 1, 2, 3; 43, 44, 45; 50, 51, 52.

**PROFESSOR SEARS** will give courses 16, 17, 38.

It is expected that the professorship vacated by Professor Manly will be filled at the September meeting of the Corporation by the election of Albert Knight Potter, A. M., who will teach courses of the same general nature as Professor Manly's, though the exact titles cannot be announced till later.

**Rhetoric**

Course 27, 28, 29 will be omitted during the coming year.

**French**

Course 4, 5, 6 will be this year a language course intended to enable the student to read any ordinary French at sight. A large amount of reading from modern authors will be done both in the class and outside.

Italian 9, Dante in English, will be offered as last year, special attention is called to this as a general culture course.

Spanish 1, 2, 3 will be conducted by Mr. Johnson, and will be devoted to the study of modern authors.

All other elective courses will remain unchanged and will be given in accordance with the number electing them.

**Biblical Literature and History**

**Hebrew**

1, 2. *Elementary Hebrew.* Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates. Harper's Manual and Elements.

3. *Historical Hebrew.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

4, 5, 6. *Hebrew Seminary.* Three hours. Throughout the year. Elective only for those who have taken 1, 2, 3. (In 1898-99 the Prophetical and in 1899-1900, the Psalm and Wisdom Literature of the Old Testament will be considered).

#### **Aramaic**

1. *Biblical Aramaic.* Two hours. Second Term. Elective for Juniors, Seniors and Graduates.

#### **Syriac**

1. *Elementary Syriac.* Two hours. Third Term. Elective for Juniors, Seniors and graduates.

#### **Assyrian.**

1, 2. *Elementary Assyrian.* Two hours. First and Second Terms. Elective for Seniors and graduates.

3. *Historical Assyrian.* Two hours. Third Term. Elective for Seniors and graduates.

4, 5, 6. *Assyrian Seminary.* Meets once a week. Throughout the year. Elective for Seniors, and graduates who have taken 1, 2, 3.

#### **Arabic**

1, 2. *Elementary Arabic.* Two hours. Second and Third Terms. Elective for Seniors and graduates.

#### **New Testament Language and Literature**

1, 2. *The Synoptic Gospels.* Three hours. First and Second Terms. Elective for Juniors, Seniors and graduates.

7. *The Book of Acts.* Three hours. Third Term. Elective for Juniors, Seniors and graduates.

#### **Biblical Literature in English.**

4. *The Beginnings of Hebrew History.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

5, 6. *Hebrew History and Literature.* From the Settlement in Caanan to the Exile. Three hours. Second and Third Terms. Elective for Sophomores, Juniors and Seniors. Kent's History of the Hebrew People, Vol. I., II.

1. *Jewish History and Literature.* From the Exile to the Maccabean Period. Three hours. First Term. Not offered in 1898-99.

3. *New Testament History and Literature.* Three hours. Second Term. Not offered in 1898-99.

7. *The Beginnings of Christianity.* Three hours. Third Term. Not offered in 1898-99.

Courses 4, 5, 6, and 1, 3, 7 are intended to give the general, as well as the technical, student a broad and comprehensive view of the history, literature and teachings of the Bible. The work will be done on the basis of the Revised Version and translations of the monumental literature, and will be conducted in the form of recitations, lectures, and special papers by the members of the class. The second division of the course (1, 3, 7), will be offered in 1899-1900.

### Drawing

In place of Drawing 2, 3, 4, as given in the last catalogue, the following will be given: 2, 3, 4 Freehand Drawing. One hour. Through the year. Required of candidates for the degree of Civil Engineer or Mechanical Engineer. Two hours of drawing. Intended to give training in freehand lettering and sketching. Extensive use of models.

PROFESSOR RANDALL.

### Civil Engineering

Course 5 will be divided into 5, four hours (eight hours field work), and 5a, two hours (recitation).

### Physics

In general Physics (1, 2, 4), the course in Electricity (4) will be replaced by the course in Optics (32).

In advanced Physics (29, 30, 31), lectures will be given in thermo-dynamics and in the analytical theory of heat including harmonic analysis (20, 21.)

### Comparative Anatomy

[Medical Preparatory Course.]

All the courses announced in the catalogue will be given. In addition, there will be a series of courses constituting a fifth year of work and open to those who are candidates for the degree of Master of Arts. A special circular, giving the details of these courses, will be sent on application.

The following table is designed to indicate the regular sequence of the courses. Departure from this order can only be made by the consent of Professor Bumpus, who will be pleased to answer any communications.

	<i>First Term</i>	<i>Second Term</i>	<i>Third Term</i>
<i>First Year</i>	Comp. Anat. 15	Comp. Anat. 1	Comp. Anat. 2
	Comp. Anat. 3 [Chemistry 1]	Comp. Anat. 4 [Chemistry 2]	Comp. Anat. 10 [Chemistry 3]
<i>Second Year</i>	Comp. Anat. 16 [Chemistry 4]	Comp. Anat. 17 [Chemistry 5]	Comp. Anat. 18
<i>Third Year</i>		Comp. Anat. 9 Comp. Anat. 20	Comp. Anat. 8 Comp. Anat. 21
<i>Fourth Year</i>	Comp. Anat. 19		

## Botany

All students who elect Botany 1, 2, 3 with the Freshman division will be required to carry it as a *four-hour* course and to be present at the full number of recitations each week.

## Notes

*Students should give careful attention to the following statements:*

The Time Schedule and Elective Lists for the Fall Term are enclosed with this circular. Students must make their elections and return the lists to the Registrar's office on or before Wednesday, September 14.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructor.

Sophomores who have taken Rhetoric 2, 3, 4, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Candidates for admission to the Freshman class should present their certificates of entrance when they appear for registration.

Members of the Senior class who are candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1898.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed, and witnessed. The guarantor must be the parent or guardian, or other responsible person.

In consideration of the admission of.....  
as a student in Brown University, I hereby guarantee and promise to pay to said University all dues for rent, tuition, and incidental and other expenses properly chargeable to said.....as such student, as and when, the same shall respectively become payable.

Copies of the above form are enclosed with the announcements and students are requested to have them filled out and returned to the Registrar before September 15.

A student paying the full room expenses for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

The "Room-Bond" hitherto required, is discontinued.

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ANNUAL

ANNOUNCEMENT

ACADEMIC YEAR

1899-1900



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# BROWN UNIVERSITY.

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1899-1900

The Academic Year begins Wednesday, September 20, with Chapel Service at 8.40 A. M. At the close of this, the classes will begin their sessions according to the Time Schedule.

All undergraduate students who are candidates for degrees, and all resident candidates for advanced degrees should report at the Registrar's office on Monday, September 18, or Tuesday, September 19 for registration.

The Committee on Special Students will receive applications for registry on Saturday, September 16 and Monday, September 18. All applicants must satisfy the committee and the officers of instruction, by examination or otherwise, of their fitness to take the courses desired. These examinations are held Monday and Tuesday, September 18 and 19.

**Special attention is called to the fact that the Tuesday before the opening of the Term is the last day for registration.**

All undergraduate students registering, or in any way changing their registration after that date, will be charged a fee of five dollars each.

Examinations for admission to the Freshman Class will be held in Wilson Hall, beginning Monday, September 18, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 18 and 19. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

## GRADUATE INSTRUCTION.

In all the departments of the University advanced instruction is given to graduate students, and courses are arranged leading to the degree of Master of Arts and Doctor of Philosophy. Further particulars may be found in the current Catalogue.

## UNDERGRADUATE INSTRUCTION

The courses of study offered candidates for the degree of A. B., Ph. B., Sc. B., M. E. or C. E. will be in the main as stated in the Catalogue for 1898-99. The following paragraphs mention only those courses in which changes occur.

**NOTE.** By thoroughly pursuing the proper college courses a student for Law, Medicine or Theology may save a year in the professional school.

### **Philosophy**

The course in Logic (Philosophy 19) will hereafter be open to election by Sophomores.

14, 28, 42. The subject for study in the Philosophical Seminary will be Ethical Theory since Kant. Beginning with Kant this course will trace the development of the leading ethical systems of modern times. Although the basis of the work will be historical, constant attention will be given to the construction of a tenable theory of morals. Two hours. Through the year. Elective for graduates only.

PROFESSOR EVERETT

### **History**

History 4, 5, 6; 7, 8, 9, will be given as last year; the first three by an instructor, the last three by Professor Jameson.

The graduate courses given in 1899-1900 will be, beside the fortnightly seminary meetings, the following:

History 10. General Principles of Historical Work; Langlois and Seignobos's *Introduction aux Études Historiques*, with practical exercises.

History 12. Practical Course, European. The theme for the year will be the relations of England to the French Revolution.

History 14. Practical Course, American. The theme for the year will be the history of colonial legislation.

The courses given by Professor Munro will be as follows :

1, 2. General History of Europe, as in catalogue.

3. History of the Reformation. Three hours. Third Term. Elective for Juniors, Seniors and graduates.

15. Islam and the Crusades. Three hours. First Term. Elective for Juniors, Seniors and graduates.

11. History of the Renaissance. Three hours. Second Term. Elective for Juniors, Seniors and graduates.

16. The French Revolution. Three hours. Third Term. Elective for Juniors, Seniors and graduates.

18. Spanish History. Three hours. Third Term. Elective for Juniors, Seniors and graduates. Not offered in 1899-1900.

### Social and Political Science

Important changes have been made in the courses to be offered by this department. Social Science 1, 2, 3, and Political Science 1, will no longer be given. In place of these and in connection with the department of Political Economy, a three hour elementary course, running through the year, will be substituted; to be known in the first term as Social Science 12, in the second term as Political Science 12, and in the third term as Political Economy 12. This course will be given in two divisions, at 10 and at 11 a. m., and will be elective for the members of the Sophomore, Junior and Senior classes. It will be thereafter an indispensable requirement for any other electives in Social, Political or Economic Science.

Those students, therefore, who had expected to elect Course 1 in any of the above sciences should elect for the first term Social Science 12, except that students who already have had Social Science 1, 2, 3, should not elect this new elementary course during the first term.

There will also be offered by the department, during the first term, Political Science 5, elective for Seniors who have had Political Science 1, and Social Science 6, elective for Seniors and for those Juniors who attained C or H in Social Science A.

The work in Elementary Law will be conducted by Mr. C. W. Barrows as follows:

The courses in Elementary Law 4, 5, 6 will be slightly altered. The courses in Pleading and Evidence 5 and 6 will be superseded by a course in Equity to occupy the second and third terms. The purpose will be to give a broad legal training to those who do not intend to become practicing attorneys and at the same time to furnish a satisfactory foundation in equity to those who do intend to study further.

### Political Economy

Courses 1, 2, 3, 4, 10, 11, 7 will not be offered during the year 1899-1900.

The following courses will be offered during the first two terms:

#### *First Term.*

12. Elementary course. Elective for those who have passed in Social Science A.

6. Money and Banking. Elective for those who have passed in Political Economy 1 and 2, or are taking 12.

15. The Labor Movement, with special reference to Trades Unions.  
Elective on the same terms as 6.

*Second Term*

5. Public Finance. Elective for those who have passed in Political Economy 1 and 2, or 12.

16. Industrial Corporations, their history, significance and regulation.  
Elective on the same terms as 5.

**NOTE.** In place of Political Economy 1, 2, 3, hitherto offered, will be given a composite course in Social Science, Political Science, and Political Economy. Elective for Sophomores, Juniors and Seniors. Hereafter this course must be completed before taking any of the advanced courses in this department. For a description of this course see statement under Social and Political Science.

### Music

The following courses will be offered during the academic year 1899-1900:  
1, 2, 3. Harmony. Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

The construction and connection of chords, modulation, non-harmonic notes, study of melody, the writing of exercises and compositions.

10, 11, 12. History and Structure of Music. Three hours. Through the year. Elective for Juniors, Seniors and graduates.

Lectures on the history of music from the earliest times down to the present, accompanied by an analysis of representative compositions.

4, 5, 6. Counterpoint. Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

Exercises in contrapuntal writing, study of the contrapuntal works of Handel and Bach.

7, 8. Fugue and Free Composition. Elective [this year] for graduates.

### Indo-European Philology

1. General Introduction to the Study of Language. Three hours.  
Second Term. Elective for Juniors and Seniors.

Outline of the history of language. The Indo-European family.  
Adapted for students of languages, ancient or modern.

4, 5, 6 will be omitted in 1899-1900.

These courses, 4, 5, 6 were given in 1898-99, and will be offered in alternate years.

7. Seminary in Comparative Philology. A course in reading for the year will be laid out for graduate students and a seminary course of a two-hour session weekly will be offered through the first or second term.

## Greek Literature and History

The elective courses will be as follows:

6. Dramatic Poets. Sophocles, *Oedipus Rex*, Aeschylus. Selections from *Oresteia*. Three hours. First Term. Elective for Sophomores.

PROFESSOR ALLINSON

4. Demosthenes, *Philippics*; Theocritus, Select Idylls. Three hours. Second Term. Elective for Sophomores.

PROFESSOR MANATT

5. Lucian, Selections. Three hours. Third Term. Elective for Sophomores.

PROFESSOR ALLINSON

23, 24. Modern Greek. One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

PROFESSOR MANATT

28. Lucian and Plato. *Vera Historia*, etc., of Lucian. Plato's Republic, Book I., and other selections. Three hours. First Term. Elective for Juniors and Seniors.

PROFESSOR ALLINSON

44. Homer: *Iliad xviii-xxiv.* will be read, together with a structural study of the whole poem, and lectures on the main results of Mycenaean Archaeology. Three hours. Second Term. Elective for Juniors and Seniors.

PROFESSOR MANATT

45. The Drama. Select Plays of Euripides and Aristophanes, with lectures on the Greek Theatre. Three hours. Third Term. Elective for Juniors and Seniors.

PROFESSOR MANATT

43. Greek Composition, advanced. One hour. Second Term. Elective for Sophomores, Juniors and Seniors.

Practice in prepared and extemporaneous writing of Greek.

PROFESSOR ALLINSON

32, 33. Attic Orators. Two hours. Second and Third Terms. Elective for graduates and approved Seniors. See 41, 42 below.

Andocides and Isaeus; Greek Historical Inscriptions.

PROFESSOR MANATT

34, 35, 36. Greek Seminary. One two-hour session weekly. Through the year. Elective for graduates and approved Seniors.

First Term (b). Post-aristotelian writers, Greek of the New Testament, etc., compared with Lucian, or Comparative Greek and Latin Grammar.

Second Term (a). Simonides and Bacchylides

or (b). Comparative Greek and Latin Grammar.

Third Term (a). Aristotle's Athenian Constitution and Select Chapters of Polybius.

PROFESSOR MANATT (a), and PROFESSOR ALLINSON (b).

41, 42. Homer and Mycenaean Archaeology. This course will be given if preferred, in place of 32, 33 above.

PROFESSOR MANATT

### Roman Literature and History

Elective courses will be offered as follows:

4, 5, 6; 7, 8, 9; 10, 14, 15; 37, 38, 39. Mr. Greene will conduct course 37, 38, 39.

Professor Harkness will offer the following new course:

40, 41, 42. Seminary in Roman Comedy. Two hours. Through the Year. Elective for graduates.

### English Literature and Language

In the absence of Professor Bronson his advanced courses will be omitted in 1899-1900.

English 1, 2, 3 will be conducted by Professors Lamont and Potter and Doctor Benedict, each taking the class for one term.

Two new courses will be given:

40, 41, 42. Victorian Literature. The course will deal with the principal writers of the last half-century; the first term with the novelists, the second with the essayists, the third with the poets. Three hours. Through the year. Elective for students who have passed in 1, 2, 3 and for others at the discretion of the professor.

PROFESSOR LAMONT

7, 8, 9. The English Drama, from the Miracle Plays to the Closing of the Theatres.

The aim of this course is to give a knowledge of the drama as a literary type, and to trace its history in England from the Scripture cycles down to 1642. The principal works of Llyl, Greene, Peele, Marlowe, Shakspere, Dekker, Ben Jonson, Heywood, Beaumont and Fletcher, Middleton, Webster and others will be read and discussed, and considerable attention given to the general historical and literary conditions of the period. Three hours. Through the year. Elective for students who have passed in 1, 2, 3, and for others at the discretion of the instructor.

MR. STARR

English 31, 32, 33, also, will now be elective only for students who have passed in 1, 2, 3, and for others at the discretion of the instructor; and as in the other courses (except 16, 17, 38), new members will not be admitted in the second or third term.

## Rhetoric and Oratory

In addition to the courses offered in the catalogue:

Rhetoric 27, 28, 29, debating, will be given by Professor Gardner, Professor Lamont and Mr. Fogg. The course will occupy two hours—probably Monday from 2 to 4—to count as three hours. Sixteen men—Seniors preferred—will be admitted.

## Germanic Languages and Literatures

During the absence of Professor Williams, his courses will be conducted by Professor Crowell.

The following courses will be given:

1, 2, 3; 4, 6, 8; 46, 47, 48; as in catalogue.

16, 17, 18. Brief view of whole field of German Literature. Critical study of New High German Period to death of Goethe. Three hours. Through the year. Elective as in catalogue.

10, 11, 12. Middle High German. Study mainly literary. Popular Epics. Court Epics. Minnesingers. Three hours. Through the year. Elective as in catalogue.

## Romance Languages and Literatures

French 13, 14, 15 and Italian 19 20, 21, will be omitted.

French 4, 5, will be given by Mr. Johnson, and French 6, by Professor Langdon. Mr. Morse will conduct the class in Italian 1, 2, 3.

## Biblical Literature and History

The following courses will be omitted:

Hebrew 4, 5, 6; Syriac 1; New Testament 1, 2, 7; Biblical Literature 4, 5, 6.

The work offered in New Testament and Biblical Literature will be as follows:

### New Testament Language and Literature

5. Gospel of John. Three hours. First Term. Elective for Juniors, Seniors and graduates.

6. The epistles to the Thessalonians and Galatians. Three hours. Second Term. Elective for Juniors, Seniors and graduates.

3. Paul's Corinthian Epistles. Three hours. Third Term. Elective for Juniors, Seniors and graduates.

### Biblical Literature in English

1. Jewish History and Literature. Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

The life and thought of the Jewish people between the fall of Jerusalem in 586 and the re-dedication of the Temple in 165 B. C.

2. New Testament History and Literature. Three hours. Second Term. Elective for Sophomores, Juniors and Seniors.

Study of the Jewish and Roman life, which constitutes the background of the New Testament, and an investigation of the date, authorship and general character of the Jewish and Christian literature of the period between 165 B. C. and 100 A. D.

3. The beginnings of Christianity. Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Historical study of the life and teachings of Jesus and of the first century of the Christian Church.

### Pure Mathematics

As stated in the catalogue, courses 30; 21, 22, 23; 27, 28, 29; will be omitted, and courses 11; 18, 19, 20; 24, 25, 26 will be offered.

### Drawing

During the absence of Professor Randall his courses will be conducted by Mr. Kenerson.

### Civil<sup>1</sup> Engineering

Course 4 will be omitted from the requirements for admission to courses 5, 5a, 6, 7.

### Astronomy

The courses in Astronomy will be arranged as follows:

Astronomy 1, 2, 6. General Astronomy. Three hours through the year. Designed as a culture course and a foundation for advanced study.

Astronomy 3, 4, 5. Practical Astronomy. Three hours through the year. Required of engineering students, elective for others. The geodetic applications of astronomy.

These courses are elective for Juniors and Seniors, and may be taken separately or together.

Astronomy 8, 9, 10. Advanced Astronomy. Three hours through the year. Elective for graduates and Seniors who have shown special aptitude in either of the preceding courses. Further study of geodetic astronomy, method of least squares or special topics as agreed upon.

Students in Astronomy 1 will procure the 1898 edition of Young's General Astronomy; students in Astronomy 3 will procure Hayford's Geodetic Astronomy.

## Physics

In Physics 1, 2, 4, 32 the instruction will thereafter be subject to the following rules, most of which have prevailed more or less rigorously during preceding years.

1. No student will be admitted after the second week of the first term.
2. A student who fails in Physics 1 (dynamics) cannot go on with the subject.
3. The time of examination will be three hours. About thirty questions will be asked at each examination, covering the ground of the term as uniformly as possible.
4. Weekly exercises, if late without valid excuse, will be marked one-third off. The exercise books are hereafter to be uniform.
5. Crude memory work, equations unexplained or at variance with the context, unintelligent answers will be marked off.

The course in general Physics (1, 2, 4,) will be Dynamics, Heat and Electricity.

In advanced Physics (29, 30, 31, or 20, 21,) harmonic analysis in its physical applications, physical optics, and dynamics will be offered at the option of the students.

In Physics 5, 9, 10 one hour per week will be devoted to lectures on physical measurements and only four hours of attendance in the laboratory will be required in place of six. Each student will be required to present a neat and comprehensive report of each experiment performed and to solve such problems as may be from time to time assigned. A written examination will be set at the close of each term.

Students electing this course will be required to attend the lecture at the scheduled hour. No conflicts will be allowed.

**Physics 11, 12, 15, 33, 34, 35. Electrical Engineering.**

Course 11 will be elective for those who have passed in 4, the requirement of Mathematics 12 being withdrawn. This is to provide a one-term course for those wishing a general knowledge of the methods of generating, measuring and utilizing electric currents; it is also introductory to the technical courses.

Course 12,—elective for those who have taken 11, having taken, or taking, 5, 9 and 10, and Mathematics 12,—is the beginning of the technical study of the theory and calculation of dynamo electric machinery. Course 15 as in catalogue.

A second year's work will be comprised in 33, 34 and 35, during which alternating current phenomena will be mathematically treated, definite engineering problems worked out, and advanced laboratory work pursued.

## Zoology, Geology and Anthropology

Professor Packard will offer the courses noted in the catalogue.

## Comparative Anatomy

The course in Anatomy of the Nervous System will be extended through the third term as 16, 17, 30.

The course in Comparative Embryology will be extended through the year as 31, 32, 33. Elective for Juniors and for Seniors who have passed with credit in 3 and 4, or 16, 17, 30.

This course, 31, 32, 33 alternates with course 16, 17, 30 and is offered for 1899-1900, but will not be offered again until 1901-1902.

### Botany

The courses noted in the catalogue, as given by Mr. Metcalf, will be conducted by Mr. J. F. Collins.

Course 12 will be given in place of course 9, by Professor Bailey and Mr. Collins.

### Notes

*Students should give careful attention to the following statements:*

The Time Schedule and Elective Lists for the Fall Term are sent with this circular to Sophomores, Juniors and Seniors. Students must make their elections and return the lists to the Registrar's office on or before Wednesday, September 13.

Students desiring to elect extra studies must designate them on their elective lists.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructors.

Sophomores who have taken Rhetoric 2, 3, 4, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Candidates for admission to the Freshman class should present their certificates of entrance when they appear for registration.

Members of the Senior class who are candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1899.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed. The guarantor must be the parent or guardian, or other responsible person.

In consideration of the admission of .....  
as a student in Brown University, I hereby guarantee and promise to pay to said University all dues for rent, tuition, and incidental and other expenses properly chargeable to said ..... as such student, as and when the same shall respectively become payable.

A student paying the full room expenses for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

Copies of the above form are enclosed with this circular and students are requested to have them filled out and returned to the Registrar before September 13. Students who have already presented guarantees will not be required to fill out new ones.

For official notices students should consult the bulletin boards in the north corridor of University Hall.

1900/1901

# BROWN UNIVERSITY

ANNUAL

# ANNOUNCEMENT

ACADEMIC YEAR

1900-1901



PROVIDENCE, R. I.

REMINGTON PRINTING CO., 63 WASHINGTON STREET

1900



# BROWN UNIVERSITY.

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ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1900-1901

The Academic Year begins Wednesday, September 19, with Chapel Service at 8.40 A. M. At the close of this service the classes will begin their sessions according to the Time Schedule.

## EXAMINATIONS

Examinations for admission to the Freshman Class will be held in Wilson Hall, beginning Monday, September 17, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 17 and 18. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

## REGISTRATION

The registration of students will begin on *Saturday*, September 15, at 9 A. M., and close on *Tuesday*, September 18, at 9 P. M.

All undergraduate students registering or in any way changing their registration after that time will be charged a fee of three dollars, unless a satisfactory explanation is made to the Dean.

The Committee on Admission to the Freshman Class, the Committee on Admission to Advanced Standing, the Com-

mittee on Courses for Special Students and the Committee on Graduate Students will be in session on these days.

Candidates for admission to the Freshman Class will report for registration to the Committee on Admission to the Freshman Class at No. 6 University Hall. Certificates of admission and other credentials must be presented at the time of registration.

Members of the Sophomore, Junior and Senior classes who have no conditions or failures, will report at the Registrar's office. Those having conditions or failures will report to the Committee on Admission to Advanced Standing at No. 6 University Hall.

Candidates for admission to advanced standing will also report to the above committee.

Candidates for admission as special students will report to the Committee on Special Students at No. 6 University Hall. All applicants must satisfy the committee and the officers of instruction, by examination or otherwise, of their fitness to take the courses desired. These examinations are held Monday and Tuesday, September 17 and 18.

Graduate students will report to the Secretary of the Committee at No. 7 Sayles Hall.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed. The guarantor must be the parent or guardian, or other responsible person.

In consideration of the admission of.....  
as a student in Brown University, I hereby guarantee and promise to pay to said University all dues for rent, tuition, and incidental and other expenses properly chargeable to said.....as such student, as and when the same shall respectively become payable.

A student paying the full room expenses for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

Copies of the above form are enclosed with this circular and students are requested to have them filled out and returned to the Registrar before September 12. Students whose guarantees have already been filed will not be required to fill out new ones.

### CHOICE OF ELECTIVES

Members of the Sophomore, Junior and Senior classes will find enclosed elective lists which are to be marked and returned to the Registrar before the registration cards can be made out. It is urgently requested that these lists be returned, if possible, before September 15th, in order to facilitate the work of the Registrar, but students wishing counsel before selecting their studies should obtain advice before returning the lists. The student advisers and the officers of instruction may be consulted on Saturday, Monday and Tuesday, 9 to 12 A. M. and 2 to 4 P. M., at the places named in the following table. Students should avail themselves of the opportunities thus offered for consultation; it is of the greatest importance to make wise choices of studies for the autumn term, as few changes can be made in the second or third terms.

Philosophy	University 6
History	Library
Social and Political Science	Maxcy 4
Political Economy	Maxcy 4
The Fine Arts	West Manning Hall
Indo-European Philology	University 6
Greek Literature and History	Maxcy 5
Roman Literature and History	Sayles 8
English Literature and Language	University 4
Rhetoric and Oratory	University 4
Germanic Languages and Literatures	Sayles 7
Romance Languages and Literatures	Sayles 4
Biblical Literature and History	Sayles 3
Pure Mathematics	University 6
Drawing	University 64

Civil Engineering	East Manning Hall
Mechanical Engineering	University 64
Mechanics	University 6
Astronomy	University 1
Physics	Wilson Hall
Chemistry	Chemical Laboratory
Zoölogy, Geology and Anthropology	Rhode Island Hall
Comparative Anatomy	Rhode Island Hall
Bibliography	Library

## Notes

Students desiring to rent rooms or to obtain room-mates should apply to the Registrar.

Students desiring to elect extra studies must designate them on their elective lists.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructors.

Members of the Freshman class who are allowed to enter with neither French or German must make up the amount required for entrance outside of the college classes in these languages. Arrangements have been made with the University School to form a special class in elementary French, if necessary.

Sophomores who have taken Rhetoric 2, 3, 4, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Members of the Senior class who are candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1900.

For official notices students should consult the bulletin boards in the north corridor of University Hall.

## Philosophy

**NOTE:** Some one complete course in this department is required of every candidate for a degree, except that of Civil Engineer. By a complete course is understood all that is grouped together as a three-hour course under a single name in the accompanying announcements, whether it consists of one term's work or of several. The courses in Pedagogy cannot be taken to satisfy this requirement.

19, 27, 43. *Logic.* Three hours. Through the year. Elective for Sophomores and for Juniors who have not taken Philosophy 19.

A study of the aims, methods and limitations of human thinking; a preparation for work in the sciences and in Philosophy. First Term, general introduction and formal logic; Second Term, an ex-

amination of the principles and methods of the natural sciences; Third Term, a statement of the relations of science to philosophy, giving the philosophic interpretation and criticism of the results of science.

Professor MEIKLEJOHN

2, 3, 4. *Psychology, introductory course.* Three hours. Through the year. Elective for Juniors.

Professor DELABARRE

20, 21, 22. *Psychology, advanced course.* Three hours. Through the year. Elective for Seniors and Graduates.

Professor DELABARRE

29, 30, 31. *Experimental Psychology, introductory laboratory course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have taken or are taking 2, 3, 4.

Professors DELABARRE and MEIKLEJOHN

39, 40, 41. *Experimental Psychology; advanced and original laboratory work.* Through the year. Elective for students who have taken 29, 30, 31.

Professors DELABARRE and MEIKLEJOHN

8, 9, 10. *History of Philosophy.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor EVERETT

5, 23. *Theoretical Ethics* Three hours. First and Second Terms. Elective for Seniors and Graduates.

Professor EVERETT

44. *Practical Ethics.* Three hours. Third Term. Elective for Seniors and Graduates.

President FAUNCE

26. *Outlines of the History of Religion.* Two hours. Second Term. Elective for Seniors and Graduates.

Professor EVERETT

24. *Philosophy of Religion.* Three hours. Third Term. Elective for Seniors and Graduates who have had previous philosophical training.

Professor EVERETT

14, 28, 42. *Philosophical Seminary.* Two hours. Through the year. Elective for Graduates.

Lectures, papers and discussions on the more difficult problems of philosophy. Subject for 1900-1901, Contemporary Philosophy. Some of the most important recent contributions to philosophical literature will be critically studied.

Professor EVERETT

17. *Discussions in Casuistry.* One hour. Second Term. Elective for Seniors and Graduates.

Professor MEIKLEJOHN

33, 34, 35. *The Philosophy of Kant.* Two hours. Through the year. Elective for Seniors and Graduates.

Professor MEIKLEJOHN

Course 19, 27, 43 replaces the courses in *Logic and Scientific Method* (19 and 27). This course, which, in addition to a treatment of formal logic, will deal with the principles and methods of the natural sciences, and with the relations of science to philosophy, is intended as a propaedeutic, not only to the various courses in philosophy and psychology, but also to the work of several other departments.

*Philosophical Introduction* (36, 37, 38), will no longer be offered, but in 1901-1902 a new course in *Metaphysics* will be offered to those Seniors who have taken, or who may then be taking, the course in the *History of Philosophy*.

As a general course in the history of philosophic thought is regarded as an essential preparation for the study of the problems of philosophy, it is recommended that students desiring to take the course in *Metaphysics* in the Senior year should elect the *History of Philosophy*, (Philosophy 8, 9, 10) in the Junior year.

### Pedagogy

1, 2, 3. Three hours. Through the year. Elective for Seniors and Graduates.

Professor JACOBS and DR. DENNIS

4, 5. *Seminary in Pedagogy.* Two hours. First and Second Terms. For student-teachers and, by special permission, elective for others.

## II. History

1, 2. *General Mediæval History of Europe.* Three hours. First and Second Terms. Required of all Juniors.

Professor MUNRO

15. *Islam and the Crusades.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Professor MUNRO

11. *History of the Renaissance.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Professor MUNRO

3. *History of the Reformation.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Professor MUNRO

16. *The French Revolution.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates. Not offered in 1900-1901.

Professor MUNRO

18. *Spanish History.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Professor MUNRO

4. *English Constitutional and Political History to 1625.* Three hours. First Term. Elective for Juniors and Seniors.

5. *English Constitutional and Political History since 1625.* Three hours. Second Term. Elective for Juniors and Seniors.

6. *History of Europe since 1800.* Three hours. Third Term. Elective for Juniors and Seniors.

7. *Constitutional and Political History of the United States to 1763.* Three hours. First Term. Elective for Seniors.

Professor JAMESON

8. *Constitutional and Political History of the United States from 1763 to 1829.* Three hours. Second Term. Elective for Seniors.

Professor JAMESON

9. *Constitutional and Political History of the United States since 1829.* Three hours. Third Term. Elective for Seniors.

Professor JAMESON

10. *Principles of Historical Criticism.* One hour. Through the year. Elective for Graduates.

Professor JAMESON

13. *History of Historical Writing in Modern Europe.* One hour. Through the year. Elective for Graduates.

Professor JAMESON

17. *Historical Bibliography.* One hour. Through the year. Elective for Graduates.

Professor JAMESON

12. *Practical Course in European History.* One hour. Through the year. Elective for Graduates.

Professor JAMESON

14. *Practical Course in American History.* One hour. Through the year. Elective for Graduates and for Seniors who are taking 7, 8 and 9.

Professor JAMESON

### III. Social and Political Science.

**NOTE:** *The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

Courses offered during the Year 1900-1901, but omitted in 1901-1902.

<i>First Term.</i>	<i>Second Term.</i>	<i>Third Term.</i>
Political Science 3. International Law	Political Science 7. Foreign Diplomacy	Political Science 11. American Diplomacy
Political Science 4. Government of the United States	Political Science 2. Important European Governments	Political Science 19. Spanish American Governments
Political Science 5. Development of Political Ideas	Political Science 6. Principles of Roman Law	Political Science 16. Constitutional Law
Social Science 10. Social Institutions	Social Science 2. Social Problems	Social Science 3. American Social Problems

Courses omitted during the year 1900-1901, but offered 1901-1902.

Political Science 13. National Administration.	Political Science 14. Local and Colonial Administration	Political Science 15. Municipal Government
Political Science 1. Problems of the State	Political Science 17. American Political Problems	Political Science 18. Political Parties
Social Science 5. History of Social Ideas	Social Science 1. Principles of Sociology	Social Science 4. The Social Ideal
		Social Science 11. Study of Races
		Social Science 13. History of Socialism

Courses for Graduates only.

Social Science 7.	Social Science 8	Social Science 9
Political Science 8	Political Science 9	Political Science 10

#### Social Science

12. *Elementary Course.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

Professor WILSON

1. *The Principles of Sociology.* Three hours. Second Term.

Professor DEALEY

2, 3. *Social Problems and Conditions.* Three hours. Second and Third Terms.

Professor WILSON

4. *Social Philosophy.* Three hours. Third Term.

Professor DEALEY

5. *Development of Social Theory.* Three hours. First Term.

Professor DEALEY

7, 8, 9. *Current Social Theory and Practice.* One hour. Through the year. Elective for Graduates.

Professors WILSON and DEALEY

10. *Social Institutions.* Development, Forms, Importance, e. g. The Family, Church, School, etc. Three hours. First Term.

Professor DEALEY

11. *Demography.* Dispersion of Races. Social Study of Race Characteristics. Three hours. Third Term.

Professor WILSON

13. *Socialism.* Ancient and Modern. Especial attention to present phases of the theory. Three hours. Third Term.

Professor DEALEY

### **Political Science**

12. *Elementary.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12.

Professor DEALEY

1. *The State.* Three hours. First Term.

Professor DEALEY

2. *Comparative Study of Constitutions.* Three hours. Second Term.

Professor DEALEY

3. *International Law and Relations.* Three hours. First Term.

Professor WILSON

4. *United States Constitutions.* Three hours. First Term.

Professor DEALEY

5. *Development of Political Theory.* Three hours. First Term.

Professor DEALEY

6. *Roman Law.* Three hours. Second Term.

Professor WILSON

7. *Diplomacy.* Three hours. Second Term. Elective for students who have completed Political Science 3.

Art and practice of international negotiation.

Professor WILSON

8, 9, 10. *Current Political Theory and Practice.* One hour. Through the year. Elective for Graduates.

Professors WILSON and DEALEY

11. *Diplomacy.* American Development and Problems. Three hours. Third Term. Elective for students who has completed Political Science 3.

Professor WILSON

13. *Administration.* Principles and National Systems. Three hours. First Term.

Professor WILSON

14. *Administration.* Local and Colonial. Three hours. Second Term. Elective for those students who have completed Political Science 13.

Professor WILSON

15. *Municipal Functions and Administration.* Three hours. Third Term.

Professor DEALEY

16. *Constitutional Law.* Principles and Development. Special reference to Constitution of the United States. Three hours. Third Term.

Professor DEALEY

17. *Political Problems.* Especially those of the United States. Three hours. Third Term.

Professor WILSON

18. *Political Parties.* Development in the United States and in Europe. Three hours. Third Term.

Professor WILSON

19. *The Spanish Republics.* Governments and Social Conditions. Three hours. Third Term.

Professor DEALEY

### **Elementary Law**

Mr. BARROWS

1. *Persons and Personal Property.* Three hours. First Term. Elective for Juniors and Seniors.

2. *Real Property.* Three hours. Second Term. Elective for Juniors and Seniors.

3. *Contracts.* Three hours. Third Term. Elective for Juniors and Seniors.

Courses 4, 9 inclusive, will be omitted during the year 1900-1901.

## IV. Political Economy

Professor GARDNER

**NOTE:** *The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy. These elementary courses are open to Sophomores, Juniors and Seniors.*

12. *Political Economy, elementary.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12 and Political Science 12.

13, 14. *General Economics.* Three hours. First and Second Terms. Elective for Juniors and Seniors.

All students intending to take courses in this department are strongly advised to begin with 13, 14. Other courses may, if desired, be advantageously taken at the same time.

6. *Money and Banking.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Includes description of monetary and banking systems of United States and foreign countries and discussion of monetary and banking problems in the United States.

15. *The Labor Movement, with special reference to Trade Unions.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

5. *Public Finance.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

16. *Industrial Corporations, their history, significance and regulation.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

17. *History of the Tariff Policy of the United States.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

With the exception of 13 and 14, which together constitute a single course, 14 being open only to those who have taken 13, each course is complete in itself and may be taken independently of other courses.

Courses 13 and 14 will be given each year. Courses 5, 6, 15, 16, 17 will be omitted in 1901-1902, when their places will be taken by courses in economic theory, economic history and commerce.

## V. The Fine Arts

**History and Criticism**

Professor POLAND

1. *Ancient Art or Classical Archaeology.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

**NOTE:** Courses 1, 4 and 6 may be taken independently, but students are advised to elect all three in the above order. Students are strongly advised to take 1, if possible, before any other course in the History of Art. A knowledge of Greek, Latin, German and French is very helpful to those who pursue even the general courses in this department.

4. *Early Christian and Mediæval Art.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

6. *Art of the Renaissance.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

7, 9. *Modern Art.* Three hours. First and Second Terms. Elective for students who have passed in 6.

**NOTE:** Courses 7, 9 and 8 form a consecutive outline.

8. *Theory and Criticism of the Fine Arts.* Three hours. Third Term. Elective for students who have passed in any course in the History of Art.

12. *Seminary in Renaissance Art.* Elective for Graduates.

Courses 10, 11, 3 will not be offered in 1900-1901.

### Music

Professor ASHTON

1, 2, 3. *Harmony.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

4, 5, 6. *Counterpoint.* Three hours. Through the year. Elective for those who passed with credit in 1, 2, 3.

14. *Musical Introduction.* Three hours. Second Term. Elective for Juniors and Seniors.

15. *Music and Musicians in the Nineteenth Century.* Three hours. Third Term. Elective for Juniors and Seniors.

13. *Sacred Music.* Three hours. Third Term. Elective for Juniors and Seniors.

### VI. Indo-European Philology

Professor ALLINSON

1. *General Introduction to the Study of Language.* Three hours. Second Term. Elective for Juniors and Seniors. Not offered 1900-1901.

4, 5. *Sanskrit, elementary.* Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates.

6. *Sanskrit, advanced.* Three hours. Third Term. Elective for students who have passed in 4 and 5, or an equivalent.

7. 8. *Seminary in Comparative Philology.* One two-hour session weekly. Second and Third Terms. Elective for Graduates and qualified Seniors. Not offered in 1900-1901.

9. *Seminary Course.* The Fable in Indian, Greek and Latin Literature. Two hours. Third Term. Elective for Graduates and qualified Undergraduates. Cf. VII. 36 (b).

## VII. Greek Literature and History

1. *Lysias.* Three hours. *Greek Prose Composition.* One hour. First Term. Required of candidates for the degree of Bachelor of Arts.

Professors MANATT and ALLINSON

2. *Plato.* Three hours. *Greek History.* One hour. Second Term. Required of candidates for the degree of Bachelor of Arts.

Professors MANATT and ALLINSON

3. *Homer.* Three hours. *Greek Literature.* One hour. Third Term. Required of candidates for the degree of Bachelor of Arts.

Professors MANATT and ALLINSON

4. *Herodotus.* Three hours. First Term. Elective for Sophomores. The Persian Wars.

Professor MANATT

5. *Lucian.* Three hours. Second Term. Elective for Sophomores. Professor ALLINSON

6. *Dramatic Poets.* Three hours. Third Term. Elective for Sophomores. Sophocles, Antigone; Aristophanes, Clouds.

Lectures on the Greek Drama.

Professor ALLINSON

Courses 7, 8, 9, 10, 11, 12, 13, 14, 15, 28, 44, 45, 25, 26, 41, 42 are not offered in 1900-1901.

16. *Plato and Aeschylus.* Three hours. First Term. Elective for Juniors and Seniors.

Republic, Bk. X.; selections from Bks. I-IX.

Agamemnon, with readings from other plays.

Professor ALLINSON

17. *Hesiod and the Homeric Hymns.* Three hours. Second Term. Elective for Juniors and Seniors.

Professor MANATT

18. *Theocritus.* Three hours. Third Term. Elective for Juniors and Seniors.

Professor MANATT

23, 24. *Modern Greek.* One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Professor MANATT

43. *Greek Composition, advanced.* One hour. Third Term. Elective for Sophomores, Juniors and Seniors.

Professor ALLINSON

32, 33. *Attic Orators.* Two hours. First and Second Terms. Elective for Graduates and approved Seniors.

Isæus, with select private sketches of Demosthenes. Greek Historical Inscriptions.

Professor MANATT

34, 35, 36. *Greek Seminary.* One two-hour session weekly. Through the year. Elective for Graduates and approved Seniors.

First Term (a) Pindar's Isthmian and Nemean Odes.

Second Term (b) Greek Sources of Latin Literature. (The Comic Fragments and Aristophanes.)

Third Term (a) Minor Dialogues of Plato, or (b) Aesop's Fables (Babrius, Phaedrus and Hitopadeça. See VI. 9).

Professor MANATT (a) and Professor ALLINSON (b)

## VIII. Roman Literature and History

1. *Livy.* Four hours. First Term. Required of candidates for the degree of Bachelor of Arts.

Professors HARKNESS and GREENE, Mr. GOULDING

2. *Cicero.* Four hours. Second Term. Required of candidates for the degree of Bachelor of Arts.

Professors HARKNESS and GREENE, Mr. GOULDING

3. *Tacitus.* Four hours. Third Term. Required of candidates for the degree of Bachelor of Arts.

Professor GREENE, Messrs. SHIPPEE and GOULDING

4. *Horace.* Three hours. First Term. Elective for Sophomores.

Professor GREENE

5. *Catullus, Tibullus and Propertius.* Three hours. Second Term. Elective for Sophomores.

Professor GREENE

6. *Satires of Horace and Juvenal.* Three hours. Third Term. Elective for Sophomores.

Professor HARKNESS

7. *Origin of Latin Poetry and Development of the Drama.* Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1900-1901.

Professor HARKNESS

NOTE: The advanced courses open to Juniors and Seniors relate to the development and history of Roman Literature. Poetry and prose are discussed in alternate years.

8. *Poetry of the Republic, continued, and Poetry of the Augustan Age.* Three hours. Second Term. Elective for Juniors and Seniors. Not offered in 1900-1901.

Professor HARKNESS

9. *Poetry of the Silver Age.* Three hours. Third Term. Elective for Juniors and Seniors. Not offered in 1900-1901.

Professor HARKNESS

11. *Terence.* Three plays. Three hours. First Term. Elective for Juniors and Seniors.

Lectures on the Development of Early Poetry and Prose; readings from Specimens of Early Latin Prose.

Professor HARKNESS

12. *Prose of the Ciceronian Age.* Three hours. Second Term. Elective for Juniors and Seniors.

Selections from Cæsar's Civil War, Cicero's Brutus and Pro Milone. Lectures on the characteristics of the prose of the Ciceronian Age.

Professor HARKNESS

13. *Tacitus and Suetonius.* Three hours. Third Term. Elective for Juniors and Seniors.

Lectures on the Characteristics of the Prose of the Silver Age.

Professor HARKNESS

37, 38, 39. *Latin Composition.* One hour. Through the year. Elective for Juniors and Seniors.

Professor GREENE

16, 17, 18. *Pliny the Younger.* One hour. Through the year. Elective for Juniors, Seniors and Graduates.

Professor HARKNESS

28, 29, 30. *Seminary in Roman History.* Two hours. Through the year. Elective for Graduates.

This course will be devoted to the study of certain historical questions relating to the last period of the republic and to the establishment of the empire. The work will be based mainly on the Roman historians and on inscriptions.

Professor HARKNESS

Courses 10, 14, 15; 31, 32, 33; 19, 20, 21; 22, 23, 24; 34, 35, 36 will not be offered in 1900-1901.

## IX. English

The courses formerly offered in the two departments, English Literature and Language, Rhetoric and Oratory, are now grouped in the one department of English and are renumbered.

**1, 2, 3.** *Practical Rhetoric.* Three hours. Through the year. Required of all Freshmen who are not candidates for the degree of Bachelor of Arts, and of all Sophomores who have not taken the subject in the Freshman year. For Freshmen and Sophomores who do not elect 13, 14, 15, this course is increased to four hours.

Dr. BENEDICT, Messrs. WOOD, STARR, CHASE, HERSEY and COOPER

**4, 5, 6.** *Argumentative Composition.* One hour. Through the year. Required of all Juniors.

Mr. WOOD, Dr. BENEDICT, Messrs. STARR, CHASE, HERSEY and COOPER

**7, 8, 9.** *English Composition, advanced.* Three hours. Through the year. Elective for students who have passed in 1, 2, 3. Not offered in 1900-1901.

**10, 11, 12.** *Debate.* Three hours. Through the year. Elective for a limited number of Juniors, Seniors and Graduates.

Juniors may substitute one term of this course for 4, 5, 6.

Professor GARDNER and Mr. CROSBY

**13, 14, 15.** *Public Speaking.* One hour. Through the year. Elective for all undergraduates.

Weekly exercises in declamation and the interpretation of the best literature, individual training.

Mr. CROSBY

**16, 17, 18.** *English Literature, introductory.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Designed to cultivate the habit of thoughtful reading and the appreciation of literary form, and to give a general knowledge of the history of English Literature.

Professor BRONSON

**19, 20, 21.** *Old English.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Professor POTTER

22, 23, 24. *Middle English.* Three hours. Through the year. Elective for students who have passed in 19, 20, 21. Not offered in 1900-1901.

Professor POTTER

25, 26, 27. *Chaucer.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Professor POTTER

28, 29, 30. *Historical Grammar of the English Language.* Three hours. Through the year. Elective for students who have passed in 19, 20, 21 or 25, 26, 27.

Professor POTTER

31, 32, 33. *English Literature, exclusive of the Drama, from 1400 to 1600.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.

Mediaeval literary forms and the literature of the Renaissance; romances, ballads, allegory, miracle-plays, the development of prose, early versions of the Bible, the Tudor translations, Elizabethan lyrics, the Chaucerans, Malory, Skelton, Sidney, Spenser.

Dr. BENEDICT

34, 35, 36. *English Literature, exclusive of the Drama, from 1600 to 1800.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not offered in 1900-1901.

The course will centre in Milton.

Professor BRONSON

37, 38, 39. *The English Drama.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not offered in 1901-1902.

Mr. STARR

40, 41, 42. *Shakspere.* Three hours. Through the year. Elective for Juniors and Seniors.

Work chiefly linguistic and interpretative, with some attention to literary history and sources of the plays read.

Professor POTTER

43, 44, 45. *Spencer, Shakspere, Milton.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18, and for others at the discretion of the instructor, but not open to any who have taken or who are taking 31, 32, 33, 34, 35, 36, 37, 38, 39. Not offered in 1900-1901.

Intended for those who wish to make merely a general study of these authors. Students expecting to teach English, or for any other reason especially interested in the subject, are advised to elect more advanced courses.

Mr. STARR.

46, 47, 48. *English Literature from 1660-1798.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not offered in 1900-1901.

Special attention to the development of the novel and to the beginnings of the romantic movement.

Mr. WOOD

49, 50, 51. *English Literature from 1798-1832.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not offered in 1901-1902.

Mr. WOOD

52, 53, 54. *English Literature from 1832, the Greater Writers.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18, and for others at the discretion of the instructor, but not open to any who have taken 55, 56, 57 or 58, 59, 60. Not offered in 1900-1902.

First term, Dickens, Thackeray, "George Eliot;" Second Term, Macaulay, Carlyle, Ruskin; Third Term, Tennyson, Browning, Arnold. Intended for those who intend to make merely a general study of these authors. Students expecting to teach English, or for any other reason especially interested in the subject, are advised to elect more advanced courses.

Mr. CROSBY

55, 56, 57. *English Literature from 1832, the Poets.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not offered in 1901-1902.

Professor BRONSON

58, 59, 60. *English Literature from 1832, the Essayists and the Novelists.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not offered in 1900-1901.

Mr. CROSBY

61, 62, 63. *American Literature.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.

Any one term of the course may be taken separately. The entire field from 1607 to the present day.

Professor SEARS

64, 65, 66. *Seminary in English Literature.* Three hours, in two sessions of an hour and a half each. Through the year. Elective for Graduates and for Seniors who have passed with credit in two or more courses in English Literature. Number of members limited to ten.

Subject in 1900-1901: History and Principles of Literary Criticism, with practice in various forms of criticism.

Professor BRONSON

## XI. Germanic Languages and Literatures.

### German

1. *Elementary Course.* Three hours. First Term. Required of all Sophomores who did not present German for entrance.

Messrs. THOMPSON and POOLE

2. *Intermediate Course.* Three hours. Second Term. Required of all Sophomores who did not present German for entrance.

Messrs. THOMPSON and POOLE

3. *Nineteenth Century Prose.* Three hours. Third Term. Required of all Sophomores who did not present German for entrance.

MESSRS. THOMPSON and POOLE

4. *Lessing.* Three hours. First Term. Elective for students who have passed in 1, 2, 3, and required of all who presented German for entrance.

Professor CROWELL

6. *Schiller.* Three hours. Second Term. Elective for students who have passed in 4, and required of all who presented German for entrance.

Professor CROWELL

8. *Goethe.* Three hours. Third Term. Elective for students who have passed in 6, and required of all who presented German for entrance.

Professor CROWELL

46, 47, 48. *Goethe's Faust, Parts I and II.* Three hours. Through the year. Elective for students who have passed in 8.

Professor WILLIAMS

16, 17, 18. *German Literature.* Three hours. Through the year. Elective for students who have studied German not less than two years.

Professor WILLIAMS

40, 41, 42. *Composition.* One hour. Through the year. Elective only for students pursuing the regular courses of the second or third year in German, and for those who have passed in 48.

Professor CROWELL

10, 11, 12. *Middle High German.* Three hours. Through the year. Elective for students who have had at least one year of German.

Professor WILLIAMS

**NOTE:** This course, like the following courses in German and those in Gothic and Old Norse, is primarily for Graduates, but may be taken by qualified undergraduates.

19, 20, 21. *Old High German.* One hour. Through the year. Elective for Graduates. Offered in 1901-1902.

Professor WILLIAMS

28, 29, 30. *Germanic Mythology.* One hour. Through the year. Elective for Graduates.

Professor WILLIAMS

#### Gothic

1, 2, 3. *Gothic Grammar.* Two hours. Through the year. Elective for Graduates. Offered in 1901-1902.

Professor WILLIAMS or CROWELL

#### Old Norse

1, 2, 3. *Introductory.* Two hours. Through the year. Elective for Graduates.

Professor WILLIAMS

### XII. Romance Languages and Literatures

#### French

A, B, C. *Elementary French.* Three hours. Through the year. Required of all Sophomores who did not present French for admission.

Mr. MORSE

1, 2, 3. *Language.* Three hours. Through the year. Required of all Freshmen who presented French for admission.

Professor JOHNSON, Messrs. MORSE and NORRIS

4, 5, 6. *Literature.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3. Not offered in 1900-1901.

Professor JOHNSON

13, 14, 15. *Practice in Writing and Speaking.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

Professor JOHNSON

31, 32, 33. *Literature, advanced.* Three hours. Through the year. Elective for students who have passed with credit in 4, 5, 6, or 13, 14, 15. Not offered in 1900-1901.

Professor LANGDON

28, 29, 30. *Literature, advanced.* Three hours. Through the year. Elective for students who have passed with credit in 4, 5, 6 or 13, 14, 15.

Professor LANGDON

34, 35, 36. *Old French and Provençal.* Three hours. Through the year. Elective for Seniors and Graduates.

Professor JOHNSON

**Italian**

**1, 2, 3.** *Modern Italian.* Three hours. Through the year. Elective for Juniors or for Sophomores not electing more than one other modern foreign language.

Mr. MORSE

**10, 11, 12.** *Fourteenth Century Classics.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

Professor LANGDON

**Comparative Literature**

**1, 2, 3.** *Dante in English.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor LANGDON

**Spanish**

**1, 2, 3.** *Modern Spanish.* Three hours. Through the year. Elective for Juniors, and for Sophomores not electing more than one other modern foreign language.

Professor JOHNSON

**XIII. Biblical Literature and History.****Hebrew.**

**1, 2.** *Elementary Hebrew.* Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates.

MR. LENT

**3.** *Historical Hebrew.* Three hours. Third Term. Elective for students who have passed in 1 and 2.

Mr. LENT

**10, 11, 12.** *Hebrew Seminary.* Three hours (one session weekly). Through the year. Elective for those who have had the equivalent of 1, 2 and 3.

The Legal Literature of the Old Testament. Critical analysis and translation of the legal books, chronological arrangement of the different codes, and a systematic codification of the laws so as to gain a comprehensive idea of the origin, development and significance of the Jewish religious institutions.

Professor KENT

**NOTE:** In succeeding years corresponding courses in the Prophetical, Psalm and Wisdom Literature of the Old Testament will be offered.

**Aramaic**

1. *Biblical Aramaic.* Two hours. First Term. Elective for students who have passed in Hebrew 1, 2 and 3.

Mr. GRAD

**Syriac**

1. *Elementary Syriac.* Two hours. Second Term. Elective for students who have passed in Aramaic 1.

Mr. GRAD

2. *Advanced Syriac.* Two hours. Third Term. Elective for students who have passed in 1.

Mr. GRAD

**Assyrian**

- 1, 2. *Elementary Assyrian.* Two hours. First and Second Terms. Elective for Juniors, Seniors and Graduates.

Professor KENT

3. *Historical Assyrian.* Two hours. Third Term. Elective for Juniors, Seniors and Graduates.

Professor KENT

- 4, 5, 6. *Assyrian Seminary.* Two hours. Through the year. Elective for advanced Semitic students.

Professor KENT

**New Testament Language and Literature**

1. *The Gospel of Mark and the First Epistle of Peter.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Critical translation and interpretation, study of the characteristics of Hellenistic Greek, and special investigation of the message and thought of Peter.

Professor KENT

2. *The Gospels of Matthew and Luke.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Rapid translation and critical interpretation, comparative study of the structure, peculiarities and aims of the three Synoptic Gospels, with a special view to laying the foundations for the historical study of the life and teachings of Jesus.

Professor KENT

5. *The Gospel and First Epistle of John.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Translation, interpretation, analysis, investigation of the questions of date and authorship, and a special study of the point of view and teachings of the apostle John.

Professor KENT

**NOTE:** In alternating years corresponding courses on the Book of Acts and the missionary and doctrinal epistles of Paul will be offered, which are intended to lay the foundations for the study of the history and doctrine of the Apostolic Church.

#### Biblical Literature and History in English

4. *The Beginnings of Hebrew History.* Three hours. First Term. Elective for Sophomores, Juniors, Seniors and Graduates.

Study of ancient Semitic and Egyptian history, civilization, and religions, which constitute the background of primitive Hebrew life and thought, interpretation of the prophetic and priestly narratives of the Book of Genesis, and reconstruction of the outlines of early Hebrew history in the light of the testimony of the monuments and primitive Hebrew traditions.

Professor KENT

5. *Hebrew History and Literature: The United Kingdom.* Three hours. Second Term. Elective for Sophomores, Juniors, Seniors and Graduates.

Investigation of the political, social and religious life and development of the Hebrew people, from their settlement in Canaan to the division of the kingdom, special attention being given to the growth of institutions.

Professor KENT

6. *Hebrew History and Literature: The Divided Kingdom.* Three hours. Third Term. Elective for Sophomores, Juniors, Seniors and Graduates.

Study of the history of the Hebrews between 937 and 586 B. C. in connection with the great political movements which affected the nations of southwestern Asia, investigations of the contents, peculiarities and aim of the Old Testament books which belong to the period, and interpretation of the character and work of the great Hebrew prophets in the light of their age.

Professor KENT

**NOTE:** These courses will be succeeded in 1901-2 by corresponding courses in Jewish history and literature from 586 B. C. to 70 A. D. and in the Beginnings of Christianity which will complete the general survey of the entire field of Biblical history and literature.

#### XIV. Pure Mathematics

1. *Geometry, Solid and Spherical.* Five hours. First Term. Required of candidates for the degree of Bachelor of Arts, Bachelor of Philosophy, Civil Engineer or Mechanical Engineer.

Professors CLARKE, DAVIS and MANNING, Dr. SLOCUM, Messrs. BLANCHARD, CURRIER and EWER

3. *Algebra.* Five hours. Second Term. Required of candidates for the degree of Bachelor of Arts, Bachelor of Philosophy, Civil Engineer or Mechanical Engineer.

Professors CLARKE, DAVIS and MANNING, Dr. SLOCUM, Messrs. BLANCHARD, CURRIER and EWER

2. *Trigonometry, Plane and Spherical.* Five hours. Third Term. Required of candidates for the degree of Bachelor of Arts, Bachelor of Philosophy, Civil Engineer or Mechanical Engineer.

Professors CLARKE, DAVIS and MANNING, Dr. SLOCUM, Messrs. BLANCHARD, CURRIER and EWER

4. *Spherical Trigonometry.* One hour. First Term. Required of candidates for the degree of Bachelor of Science.

Mr. BLANCHARD

5, 6, 7. *Algebra.* One hour. First Term. Two hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Science.

Mr. BLANCHARD

8. *Determinants and Theory of Equations.* Three hours. Third Term. Elective for students who have passed in 3, or 5, 6, 7.

Professor MANNING

9, 10. *Analytic Geometry.* Three hours. First and Second Terms. Elective for students who have passed in 1, 2 and 3. Required of candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer.

Professor DAVIS

11. *Modern Methods in Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10. Offered in alternate years.

Professor MANNING

30. *Solid Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10. Not offered in 1900-1901.

Professor MANNING

12. *Differential Calculus.* Three hours. First Term. Elective for students who have passed in 9 and 10; required of candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer.

Professor DAVIS

13. *Integral Calculus.* Three hours. First Term. Elective for students who have passed in 12; required of candidates for the degree of Civil Engineer or Mechanical Engineer.

Professor DAVIS

14. *Applications of the Differential Calculus.* Three hours. Second Term. Elective for students who have passed in 12 and 13; required of candidates for the degree of Civil Engineer or Mechanical Engineer.

Professor DAVIS

31. *Applications of the Integral Calculus.* Three hours. Third Term. Elective for students who have passed in 13; required of candidates for the degree of Civil Engineer.

Professor DAVIS

15, 16. *Differential Equations.* Three hours. First and Second Terms. Elective for students who have passed in 13.

Professor MANNING

18, 19, 20. *Modern Algebra, Higher Plane Curves and Surfaces.* Three hours. Through the year. Elective for Graduates and candidates for the degree of Bachelor of Science who have passed in 16 and 30. Not offered in 1900-1901.

Professor MANNING

21, 22, 23. *Theory of Functions.* Three hours. Through the year. Elective for Graduates, and for candidates for the degree of Bachelor of Science who have passed in 16.

Professor MANNING

24, 25, 26. *Differential Equations, Advanced.* Three hours. Through the year. Elective for Graduates who have passed in 23. Not offered in 1900-1901.

Professor MANNING

27, 28, 29. *Substitutions and Transformation Groups.* Three hours. Through the year. Elective for graduates. Not offered in 1900-1901.

Professor MANNING

32, 33, 34. *Quaternians, Non-Euclidean Geometry and Hyperspace.*

Professor MANNING

35, 36, 37. *General Theory of Surfaces.* Darboux.

Professor MANNING

## XV. Drawing.

1. *Elementary Mechanical Drawing.* Four hours. First, Second or Third Term. Required of Freshmen who are candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer; elective for Freshmen who are candidates for the degree of Bachelor of Philosophy.

Eight hours of drawing.

Professor RANDALL

16. *Elementary Mechanical Drawing.* Three hours. Elective in any term for Sophomores, Juniors and Seniors.

Six hours of drawing.

Professor RANDALL

5, 6. *Descriptive Geometry.* Four hours. Second and Third Terms. Required of Freshmen who are candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer; elective for Freshmen who are candidates for the degree of Bachelor of Philosophy and have passed in 1.

Three hours of recitation and two hours of drawing.

Professor RANDALL

17, 18. *Descriptive Geometry.* Three hours. Elective in any term for Sophomores, Juniors and Seniors who have passed in 1 or 16.

Two hours of recitation and two hours of drawing.

Professor RANDALL

7. *Shades and Shadows and Perspective.* Three hours. First Term. Required of candidates for the degree of Civil Engineer or Mechanical Engineer; elective for students who have passed in 5, 6, or 17, 18.

Two hours of recitation and two hours of drawing.

Professor RANDALL

14. *Shades and Shadows and Perspective, advanced.* Three hours. Third Term. Elective for students who have passed in 7.

Six hours of drawing.

Professor RANDALL

8. *Elementary Machine Drawing.* Three hours. Second Term. Required of candidates for the degree of Mechanical Engineer; elective in any term for students who have passed in 5, 6, or 17, 18.

Six hours of drawing.

Professor RANDALL

9. *Gearing.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in Mechanical Engineering 1, and in Drawing 5, 6, or 17, 18.

One hour of recitation and four hours of drawing.

Professor BURNHAM

10, 11. *Machine Drawing, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in 8 and 9.

Six hours of drawing.

Professor BURNHAM

12. *Elements of Machine Design.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in Mechanical Engineering 1, and in Drawing 10, II.

Six hours of drawing.

Professor BURNHAM

27, 28. *Machine Design, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in 10, 11 and 12, and in Mechanics 3, 4 and 6.

Six hours of drawing.

Professor BURNHAM

32. *Steam Engine design.* Three hours. Third Term. Elective for students who have passed in 27, 28.

Lectures, calculations and drawing.

Professor BURNHAM

15. *Constructive Geometry.* Three hours. First Term. Elective for students who have passed in 1 or 16.

Six hours of drawing.

Professor RANDALL

13 *Constructive Geometry.* Four hours. First Term. Elective for students who have passed in 1 or 16.

Eight hours of drawing. Similar to 15. For Freshmen who have had the equivalent of 1.

Professor RANDALL

19 *Mechanical Drawing.* Three hours. Second term. Elective for students who have passed in 16.

Six hours of drawing.

Professor RANDALL

20. *Mechanical Drawing continued.* Three hours. Third Term. Elective for students who have passed in 19.

Six hours of drawing.

Professor RANDALL

29, 30, 31. *Lettering.* One hour. Through the year. Open only to students who are candidates for the degree of Civil Engineer.

Two hours of drawing.

Professor HILL

2, 3, 4. *Freehand Drawing.* One hour. Through the year. Required of candidates for the degree of Civil Engineer or Mechanical Engineer.

Two hours of drawing.

Professor RANDALL

## XVI. Civil Engineering

1, 2, 3. *Surveying.* Three hours. Through the year. Elective for students who have passed in Mathematics 1, 2 and 3 and in Drawing 1 or 16.

Professor HILL and Mr. BLANCHARD

**NOTE:** All courses in this department are required of candidates for the degree of Civil Engineer; all except 4 are elective for other students.

4. *Topographical Drawing.* Three hours. Second Term.

Mr. BLANCHARD

8, 8a. *Surveying, advanced.* One hour and five hours. Third Term. Elective for students who have passed in 1 and 2, but 8 and 8a cannot be elected separately. The field work (8a) is done during the spring recess.

Professor HILL and Mr. BLANCHARD

5, 5a, 6, 7. *Railroad Engineering.* Two, four, three and three hours. First, Second and Third Terms. Elective for students who have passed in 3 and 8, but 5 and 5a cannot be elected separately.

Professor HILL and Mr. BLANCHARD

10, 11. *Hydraulic Engineering.* Three hours. Second and Third Terms. Elective for students who have passed in Mathematics 13 and Mechanics 4.

Professor HILL

12. *Framed Structures.* Three hours. Third Term.

Calculation of stresses in roofs and bridges by analytical methods. Lectures, recitations and seminary work.

Mr. BLANCHARD

**NOTE:** Courses 12 to 14a are inclusive, elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 1 or 16.

13. *Structural Details.* Three hours. First Term. Lectures and computations.

Mr. BLANCHARD

13a. *Roof Design and Graphic Statics.* Three hours. First Term. Elective for students who have passed in 12, 13.

Drawing and computations.

Mr. BLANCHARD

14. *Bridge Design.* Six hours. Second Term. Elective for students who have passed in 12, 13, 13a.

Drawing, computations and field excursions. Design of plate girders, riveted and pin connected trusses, with working drawings.

Mr. BLANCHARD

14a. *Bridges.* Three hours. Third Term. Elective for students who have passed in 12.

Lectures, recitations and seminary work. Theory of cantilever, draw, continuous, suspension and arched structures.

Mr. BLANCHARD

15. *Masonry.* Three hours. Second Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Professor HILL

16. *Geodesy.* Three hours. Second Term. Elective for students who have passed in 3 and 8 and Astronomy 4.

Professor HILL

17. *Sanitary Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Professor HILL

18. *Roads and Pavements.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Mr. BLANCHARD

19, 20, 21. *Laboratory Investigations.* Three hours. Through the year. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Professor HILL

NOTE: For 1900-1901 students in Civil Engineering will take Mechanical Engineering 6 and 7 in place of Civil Engineering 19 and 20.

## XVII. Mechanical Engineering

1. *Kinematics.* Three hours. First Term. Elective for students who have passed in Drawing 5, 6, or 17, 18.

Professor BURNHAM

9. *Thermodynamics of the Steam Engine.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in Physics 1, 2, 4 and in Mathematics 12, 13 and 14.

Professor BURNHAM

3, 4, 5. *Steam Engineering.* Three hours. Through the year. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in 9.

Professor BURNHAM and Mr. KENERSON

6, 7, 8. *Materials of Engineering.* Three hours. Through the year. Required of candidates for the degree of Mechanical Engineer; elective for students who have passed in Mechanics 3, 4, 6.

Professor BURNHAM and Mr. KENERSON

10, 11, 12. *Wood-work.* Three hours. Required of candidates for the degree of Mechanical Engineer; elective for Sophomores, Juniors and Seniors.

Mr. LESTER

**NOTE:** Though courses 10 to 18 are all open to Sophomores, Juniors and Seniors, no more than two of them can be counted towards the degree of Bachelor of Arts, Bachelor of Philosophy or Bachelor of Science. These courses may be begun in any term.

13, 14, 15, 16. *Metal-work.* Three hours. Required of candidates for the degree of Mechanical Engineer; elective for Sophomores, Juniors and Seniors.

Six hours of attendance.

Mr. STARK

17. *Wood-work.* Three hours. Elective during any term for Sophomores, Juniors and Seniors.

Six hours of attendance.

Mr. LESTER

18. *Metal-work.* Three hours. Elective during any term for Sophomores, Juniors and Seniors.

Six hours of attendance.

Mr. STARK

*Thesis.* A graduation thesis is required of all students who are candidates for the degree of Mechanical Engineer. It may be based either on extended independent study, on original experiments by the student, or on an original design of some complicated machine. In any case it must exhibit satisfactory ability in the student as an engineer.

### Mechanics

3, 4, 6. *Mechanics of Solids.* Three hours. Through the year. Elective for students who have passed in Mathematics 9, 10 and 12, and who are taking Mathematics 13.

Professor CLARKE

7, 8. *Mechanics of Fluids.* Three hours. First and Second Terms. Elective for students who have passed in 3, 4, 6.

Professor CLARKE

## XVIII. Astronomy

1, 2, 6. *General Astronomy.* Three hours. Elective for Juniors and Seniors.

Professor UPTON

3, 4, 5. *Geodetic Astronomy.* Three hours. Required of Engineering students. Elective for Juniors and Seniors.

Dr. SLOCUM

8, 9, 10. *Practical Astronomy.* Three hours. Elective for graduates and undergraduates who have shown special aptitude in either 1, 2, 6 or 3, 4, 5.

Professor UPTON and Dr. SLOCUM.

14, 15, 16. *Mathematical Astronomy.* Three hours. Elective for Graduates.

Professor UPTON

THE FOLLOWING IS OFFERED ONLY TO STUDENTS OF THE WOMEN'S COLLEGE.

1w, 2w, 3w. *Physical Geography.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Dr. SLOCUM

## XIX. Physics

1, 2, 4. *Elementary Physics.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors who have passed in Mathematics 1, 2, 3.

First Term, kinematics and dynamics; Second term, molecular physics and heat, alternating with light. Third Term electricity.

Professor BARUS

32. *Optics and Acoustics.* Three hours. Second Term. Elective for Juniors and Seniors who have passed in 1, 2.

Professor BARUS

NOTE: This course alternates with 2. Course 32 will be given this year.

5, 9, 10. *Physical Measurements.* Three hours. Through the year. Elective for students who have passed in 1, 2, 4.

One lecture hour and four hours in the laboratory.

Professor PALMER

11. *Electrical Engineering.* Three hours. First Term. Elective for students who have passed in 4.

Professor WATSON

12. *Electrical Engineering.* Three hours. Second Term. Elective for students who have passed in 11, and who have taken or are taking 5, 9, 10, and Mathematics 12.

Professor WATSON

15. *Electrical Engineering.* Three hours. Third Term. Elective for students who have passed in 11 and 12.

Six hours of laboratory work.

Professor WATSON

33, 34, 35. *Electrical Engineering.* Three hours. Through the year. Elective for students who have passed in 15.

A continuation of 11, 12, 15.

Professor WATSON

13, 14, 16. *Mathematical Treatment of Dynamical Problems.* Three hours. Through the year. Elective for Seniors and Graduates who have passed in 10 and Mathematics 16.

Professor PALMER

17, 18, 19. *Laboratory Course, advanced.* Three hours through the year. Elective for students who have passed in 10.

Professors BARUS, PALMER and WATSON

20, 21. *Harmonic Analysis.* Three hours. Second and Third Terms. Elective for Seniors, and Graduates who have passed in 1, 2, 4 and Mathematics 14, 15.

Professor BARUS

22. *Behavior of Matter through Long Ranges of Temperature.* Elective for graduates.

Professor BARUS

**NOTE:** Courses 22-25, inclusive, occupy more or less time per week according to the requirements of the students. These courses are definitely organized, and the requisite apparatus is provided for conducting them. Other courses of original research are offered to suit the special needs or training of advanced students. The order of interchange between 13, 14, 16 and 26, 27, 28, and between 20, 21, and 29, 30, 31, is not fixed. The preference of the applicants for instruction will be regarded in determining which shall be given.

23. *Behavior of Matter through Long Ranges of High Pressure.* Elective for Graduates.

Professor BARUS

24. *Absolute Viscosity of Solids as Compared with Liquids and Gases.* Elective for Graduates.

Professor BARUS

25. *Physical Properties of the Iron Carburets.* Elective for graduates.

Professor BARUS

26, 27, 28. *Mathematical Theory of Electricity and Magnetism.* Three hours. Through the year. Elective for Graduates and Seniors who have passed in 10 and Mathematics 16.

Professor PALMER

NOTE: This course alternates with 13, 14, 16.

29, 30, 31. *Physics, advanced.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in Mathematics 12, 13 and 14.

Professor BARUS

NOTE: Candidates for the degree of Master of Arts with a major in physics will be held responsible for at least one of the advanced courses in theoretical physics. The requirements for non-resident students with a minor in physics are quite as advanced as for students in residence with a major in physics. The department is able to offer every reasonable facility both for research work, and for the study of the higher problems in physics; it is not able to offer much encouragement to those wishing to take degrees not in residence.

## XX. Chemistry

1, 2, 3. *Descriptive Chemistry.* Three hours. Through the year. Elective for Sophomores.

Non-metals, metals and carbon compounds.

Professor APPLETON, Messrs. CALDER and SMITH

4, 5. *Qualitative Analysis.* Three hours. First and Second Terms. Elective for Juniors.

Six hours of attendance.

Professor APPLETON and Mr. WILSON

6. *Quantitative Analysis.* Three hours. Third Term. Elective for Juniors.

Six hours of attendance.

Professor APPLETON and Mr. WILSON

7, 8, 9. *Quantitative Analysis, advanced.* Six hours. Through the year.

Twelve hours of attendance.

Professor APPLETON and Mr. WILSON

NOTE: Courses 7-23 are elective for students who have passed in I-6.

10, 11, 12. *Organic Chemistry.* Six hours. Through the year.

Twelve hours of attendance.

Professor APPLETON and Mr. RAIFORD

13. *Assaying.* Six hours. Third Term. Elective for students who have taken courses 7, 8.

Twelve hours of attendance.

Professor APPLETON and Mr. WILSON

18. *Agricultural Chemistry.* Six hours. Third Term.

Twelve hours of attendance.

Professor APPLETON and Mr. WILSON

23. *The Scouring and Dyeing of Wool.* Six hours. Third Term. Elective for students who have taken courses 10, 11.

Twelve hours of attendance.

Professor APPLETON and Mr. RAIFORD

## XXI. Zoology, Geology and Anthropology

Professor PACKARD

### Zoology

1, 2. *General Course on Invertebrate Animals.* Three hours. Second and Third Terms. Elective for Juniors and Seniors.

Zoölogy 2 will require six hours of laboratory work.

3. *Evolution.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Primary and secondary factors of evolution; relation of animals to the world around them; variation of species; zoo-geography; effects of light, changes of temperature, food, climate; effects of isolation; kinetogenesis or dynamical evolution; mimicry; heredity; views held by different schools of evolutionists. Lectures and demonstrations.

### Geology

1. *Physical Geology.* Three hours. First Term. Elective for Seniors.

5. *Structural and Stratigraphic Geology.* Three hours. First Term. Elective for Seniors.

Six hours of attendance. Field and laboratory work.

2. *Historical Geology, including Paleontology.* Three hours. Second Term. Elective for Seniors, or those who have taken Geology 1, 5, and Zoölogy 1 and 2.

Lectures, text book and laboratory work

### Anthropology

1. *General Course.* Three hours. Third Term. Elective for Seniors and Graduates.

### XXII. Comparative Anatomy

15, 1. *Practical Vertebrate Dissection.* Four hours. First and Second Terms. Elective for Undergraduates.

Six hours of attendance.

Professor GORHAM

2. *Invertebrate Dissection.* Four hours. Third Term. Elective for students who have passed in 15 and 1.

Six hours of attendance.

Professor BUMPUS

3, 4. *Comparative Anatomy of Vertebrates.* Three hours. First and Second Terms. Elective for Sophomores and others who have passed with credit in 15, 1 and 2.

Five hours of attendance.

Professor BUMPUS

10. *Normal Histology and Micro-Technique.* Three hours. Third Term. Elective for Sophomores and others who have passed with credit in 3 and 4.

Six hours of attendance.

Professor GORHAM

16, 17, 30. *Anatomy of the Nervous System.* Three hours. Through the year. Elective for Juniors and Seniors who have passed with credit in 3 and 4.

Six hours of attendance.

Professor MEAD.

18, 19, 20, 21. *Physiology.* Three hours. Third, First, Second and Third Terms. Elective for Juniors and Seniors who have taken Chemistry 4.

Six hours of attendance.

Professor TOWER

9. *Bacteriology.* Three hours. Second Term. Elective for Juniors and Seniors who have passed in 10.

Six hours of attendance.

Professor GORHAM

31, 32, 33. *Comparative Embryology.* Three hours. Through the year. Elective for Juniors and for Seniors who have passed with credit in 3, 4 or 16, 17, 30. Not offered in 1900-1901.

Six hours of attendance.

Professor MEAD

**NOTE:** This course alternates with 16, 17, 30 and will be offered in 1901-1902.

25. *Biological Theories and Biological Problems.* Elective for Graduates.

Weekly seminar.

Professor BUMPUS

27. *Bacteriological Research.* Elective for Graduates.

Laboratory work and seminar.

Professor GORHAM

28. *Advanced Physiology.* Elective for Graduates.

Professor TOWER

29. *Human Anatomy.* Laboratory instruction. Elective for Graduates.

Dr. PERKINS

THE FOLLOWING COURSES ARE OFFERED ONLY TO STUDENTS OF THE  
WOMEN'S COLLEGE

15w, 1w, 2w. *Introductory Biology.* Four hours. Through the year. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy, and for Sophomores, Juniors and Seniors.

Six hours of attendance.

Miss WING

22w, 23w, 24w. *Hygiene and Sanitation.* Three hours. Through the year.

Miss WING

### XXIII. Botany

1, 2, 3. *General Morphology, Physiology and Ecology.* Three hours. Through the year. Elective for Undergraduates. For Freshmen this course is increased to four hours.

Six hours of attendance. Comparative study of the seed, the seedling and the mature plant; variations due to the environment, etc.

Professor BAILEY

4, 5. *Histology and Physiology* Three hours. First and Second Terms. Elective for students who have passed in 1, 2, 3.

Six hours of attendance. Structure and physiology of vegetable cells, tissues and organs; experiments in plant physiology; rudiments of botanical microtechnique and embryology.

Mr. COLLINS

14. *Medical Botany.* Three hours. Third Term. Elective for students who have passed in 5.

Five hours of attendance. Systematic study of the more important medical plants and their constituents; the location, characteristics and methods of extraction of the commoner vegetable drugs.

Professor BAILEY and Mr. COLLINS

7. *Lower Cryptogams.* Three hours. First Term. Elective for Juniors and Seniors who have passed in 3.

Six hours of attendance. Comparative study of the structure and development of prominent types of the algae and lower fungi; collection and classification.

Mr. COLLINS

12. *Higher Cryptogams.* Three hours Second Term. Elective for Juniors and Seniors who have passed in 7.

Six hours of attendance.

Mr. COLLINS

9. *Mycology.* Three hours. Third Term. Elective for students who have passed in 7.

Six hours of attendance. Structure, development, collection and classification of edible, poisonous and other economic fungi; plant diseases.

Mr. COLLINS

## **XXIV. Bibliography**

Mr. KOOPMAN

1. *Books and Libraries.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

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BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

ACADEMIC YEAR

1901-1902



THE LIBRARY OF  
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1901



# BROWN UNIVERSITY

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1901-1902

The Academic Year begins Wednesday, September 18, with Chapel Service at 8.40 A. M. At the close of this service the classes will begin their sessions according to the Time Schedule.

### EXAMINATIONS

Examinations for admission to the Freshman Class will be held in Wilson Hall, beginning Saturday, September 14, at 9 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 16 and 17. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

### REGISTRATION

The registration of students will begin on *Saturday*, September 14, at 9 A. M., and close on *Tuesday*, September 17, at 9 P. M.

All undergraduate students registering or in any way changing their registration after that time will be charged a fee of three dollars, unless a satisfactory explanation is made to the Dean.

The Committee on Admission to the Freshman Class, the Committee on Admission to Advanced Standing, the Com-

mittee on Courses for Special Students and the Committee on Graduate Students will be in session on these days.

Candidates for admission to the Freshman Class will report for registration to the Committee on Admission to the Freshman Class at No. 5 University Hall. Certificates of admission and other credentials must be presented at the time of registration.

Members of the Sophomore, Junior and Senior classes who have no conditions or failures, will report at the Registrar's office. Those having conditions or failures will report to the Committee on Admission to Advanced Standing at No. 6 University Hall.

Candidates for admission to advanced standing will also report to the above committee.

Candidates for admission as special students will report to the Committee on Special Students at No. 6 University Hall. All applicants must satisfy the committee and the officers of instruction, by examination or otherwise, of their fitness to take the courses desired. These examinations are held on Saturday, Monday and Tuesday, September 14, 16, 17.

Graduate students will report to the Secretary of the Committee at No. 7 Sayles Hall.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed. The guarantor must be the parent or guardian, or other responsible person.

In consideration of the admission of ..... as a student in Brown University, I hereby guarantee and promise to pay to said University all dues for rent, tuition, and incidental and other expenses properly chargeable to said ..... as such student, as and when the same shall respectively become payable.

A student paying the full room expenses for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

Copies of the above form are enclosed with this circular and students are requested to have them filled out and returned to the Registrar before September 11. Students whose guarantees have already been filed will not be required to fill out new ones.

### CHOICE OF ELECTIVES

Members of the Sophomore, Junior and Senior classes will find enclosed elective lists which must be marked and returned to the Registrar before the registration cards can be made out. It is urgently requested that these lists be returned, if possible, before September 11th, in order to facilitate the work of the Registrar, but students wishing counsel before selecting their studies should obtain advice before returning the lists. The student advisers and the officers of instruction may be consulted on Saturday, Monday and Tuesday, September 14, 16, 17, as announced on the bulletin boards. Students should avail themselves of the opportunities thus offered for consultation; it is of the greatest importance to make wise choices of studies for the autumn term, as few changes can be made in the second or third terms.

### Notes

Students desiring to rent rooms or to obtain room-mates should apply to the Registrar.

Students desiring to elect extra studies must designate them on their elective lists.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructors.

Members of the Freshman class who are allowed to enter with neither French or German must make up the amount required for entrance outside of the college classes in these languages.

Sophomores who have taken Rhetoric 2, 3, 4, during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Members of the Senior class who are candidates for the degree of Civil Engineer are required to hand the subjects of their Theses to Professor Hill on or before October 31, 1901.

For official notices students should consult the bulletin boards in the north corridor of University Hall.

# ANNOUNCEMENT OF COURSES FOR 1900-1901

## Philosophy

### Philosophy and Psychology

**NOTE:** Some one complete course in this department is required of every candidate for a degree, except that of Civil Engineer. By a complete course is understood all that is grouped together as a three-hour course under a single name in the accompanying announcements, provided it consists of more than one term's work. The courses in Education, however, cannot be taken to satisfy this requirement.

**19, 27, 43.** *Logic.* Three hours. Through the year. Elective for Sophomores and for Juniors who have not taken Philosophy 19.

Professor MEIKLEJOHN

**2, 3, 4.** *Psychology, introductory course.* Three hours. Through the year. Elective for Juniors.

Professor DELABARRE

**20, 21, 22.** *Psychology, advanced course.* Three hours. Through the year. Elective for Seniors and Graduates

Professor DELABARRE

**29, 30, 31.** *Experimental Psychology, introductory laboratory course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have taken or are taking 2, 3, 4.

Professors DELABARRE and MEIKLEJOHN

**39, 40, 41.** *Experimental Psychology; advanced and original laboratory work.* Through the year. Elective for students who have taken 29, 30, 31.

This course may be taken for any number of hours up to six in the case of undergraduates, or more in the case of graduates, with double the number of hours of attendance.

Professors DELABARRE and MEIKLEJOHN

**45, 46, 47.** *Experimental Psychology, pedagogical course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

This course studies the methods of accurate research in psychology, with special reference to its bearing on the problems of modern pedagogy. The aim is not so much to solve these problems as to become familiar with the manner in which their scientific solution is to be sought. Practice in laboratory work will be included, and this part of the course will involve double hours of attendance.

Professor DELABARRE

**8, 9, 10.** *History of Philosophy.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor EVERETT

5, 23. *Theoretical Ethics.* Three hours. First and Second Terms. Elective for Seniors and Graduates.

Professor EVERETT

44. *Practical Ethics.* Three hours. Third Term. Elective for Seniors and Graduates.

President FAUNCE

[26. *Outlines of the History of Religion.* Two hours. Second Term. Elective for Seniors and Graduates.] Not offered in 1901-1902.

Professor EVERETT

24. *Philosophy of Religion.* Three hours. Third Term. Elective for Seniors and Graduates who have had previous philosophical training.

Professor EVERETT

14, 28, 42. *Philosophical Seminary.* Two hours. Through the year. Elective for Graduates.

Lectures, papers and discussions on the more difficult problems of philosophy. Subject for 1901-1902. Studies in Contemporary Philosophy. Some of the most important recent contributions to philosophical literature will be critically studied.

Professor EVERETT

17. *Discussions in Casuistry.* One hour. Second Term. Elective for Seniors and Graduates.

Professor MEIKLEJOHN

33, 34, 35. *Kantian and Post-Kantian Philosophy.* Three hours. Through the year. Elective for Seniors who have taken Philosophy 8, 9, 10, and for Graduates.

Kant's Critique of Pure Reason will be studied as the source of German Rationalism. The same line of thought will be traced in the Critique of Practical Reason, and in the works of Fichte, Schelling and Hegel.

Professor MEIKLEJOHN

*Philosophical Club.* A Philosophical Club, consisting of Graduate, Senior and Junior students of philosophy in all its branches, has been formed for the encouragement of the independent discussion of philosophical questions and for the fostering of a more intelligent interest in the subject. The club meets once a month for the reading of papers and for free discussion. Though the organization is primarily in the hands of the students, the officers of instruction in the philosophical department, as well as other persons interested in philosophy, members of the University or not, are usually present to take part in the proceedings.

## Education

Professor JACOBS

- 1. *History of Educational Theories and Institutions.*** Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Education among the Greeks and the Romans; the rise and constitution of Universities; Erasmus and the Humanists; Comenius and the Realists; Rousseau and the Naturalists; Psychologizing Education, Pestalozzi, Froebel, Herbart.

- 2. *A Critical Study of Modern Education.*** Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

- 3. *The Fundamental Principles of Education.*** Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

The meaning and aim of education; the sequence and coordination of studies; the principles of instruction as derived from psychology; apperception; the steps in method; the use of the type in instruction; the training of the will and the principles of moral education.

**NOTE:** Courses 1, 2 and 3 treat of education in its relation to the individual, and to the social and political whole, and hence are of interest to all students, whether they intend to teach or not. At the same time they form a proper and necessary introduction to the professional courses which follow. It is recommended that those who intend to teach elect these courses during the Junior year.

- 4. *The Psychology of Education.*** Three hours. First Term. Elective for Seniors and Graduates.

The principles of psychology applied to method in education and instruction.

- 5. *The Hygiene of Education.*** Three hours. Second Term. Elective for Seniors and Graduates.

The hygiene of growth. Play and fatigue. Eyesight and hearing. School diseases. School architecture. Warming, ventilating and lighting. Sanitation. School furniture. School programmes.

- 6. *Practical Introduction to Teaching.*** Three hours. Third Term. Elective for Seniors and Graduates.

Organization of school systems. Management and discipline of classes. Observation of good teaching. Practical applications in method.

**NOTE: Teachers Certificates.** The above courses, 1-6 cover the requirements in professional studies for certificates of the First Grade in all states except where practice teaching or experience is

demanded. In Rhode Island, *the holding of a certificate is required of all teachers* in schools supported in whole or in part by public money. Certificates of the First Grade are granted without examination to those who have completed the above courses and hold a college degree.

**NOTE:** Those who have completed courses 1-6 and hold a college degree are eligible to appointment in the Primary and Grammar Training Schools of Providence, under especially favorable conditions.

7. *A Study of Educational Values.* Two hours. First Term. Seminary course. Required of student teachers. Elective for Graduates and experienced teachers.

The importance and the meaning of the chief subjects taught in Secondary Schools are carefully considered.

8. *Method as Applied to Typical Secondary School Studies.* Two hours. Second Term. Seminary course. Required and elective as in 7.

Methods of teaching English, Latin, Modern Languages, Mathematics, History, Science.

9. *Organization, Equipment and Management of Secondary Schools.* Two hours. Third Term. Seminary course. Required and elective as in 7.

10, 11, 12. *Problems in Practical Teaching.* Practice teaching. Control and conduct of classes, plans for single lessons, and for "method-wholes," observation of the work of experienced teachers, reports, private conferences, theses upon practical questions of educational work.

**NOTE:** Opportunity for practice teaching in the High Schools of the city is given to capable graduate students, and in the Grammar Schools to a limited number of Seniors, preparing to teach in the Grades or to fill places as Principals or Superintendents.

*Seminary in Education.* Contemporary Problems. Elective for Graduates and experienced teachers.

Owing to the absence of Professor Jacobs during the first term 1901-02, Education 1 and 4 will be given the second term and 2 and 5 will be omitted. The graduate courses also will be somewhat modified.

**NOTE:** Student Teachers. By special arrangement with the School Committee of the City of Providence, student-teachers are appointed to places in the Providence High Schools. Appointments are made from members of the Senior class who have pursued the undergraduate courses in Education. These student-teachers are of two types. Those of the first type—of whom there are at least six (three of each sex)—under the guidance and direction of experienced teachers, have the control and

conduct of classes. The time required each day is somewhat more than half the usual school session. They receive from the city \$400 for their services for the year. Those of the second type are occupied in a similar way for from three to five hours a week. They receive no renumeration from the city. An unusual opportunity is thus afforded student teachers to gain a thorough knowledge of the theory of education and at the same time practical experience in the art of teaching. In making appointments to places as teachers of the lowest grade in the Providence High School, preference is given to those who have successfully accomplished the course as student teachers. In this respect student teachers of the second type have the same status before the committee making appointments as those of the first type.

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AGREEMENT BETWEEN THE SCHOOL COMMITTEE OF THE CITY OF  
PROVIDENCE AND BROWN UNIVERSITY, RESPECTING THE  
TRAINING OF TEACHERS.

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DIRECTOR

(1) The Professor of the Theory and Practice of Education at Brown University shall be Director of the Training Department in the Providence High Schools.

(2) He shall confer with the principals of the high schools and the supervising teachers, as to the arrangement of hours and classes assigned to the student-teachers.

(3) He shall visit the classes of student-teachers frequently, and together with the supervising teacher advise them as to methods of improvement.

(4) He shall meet the student-teachers regularly for systematic discussion and instruction.

(5) In case the work of any student-teacher is negligent or poor in discipline or scholarship, he shall advise the Superintendent that it is wise to dismiss such student-teacher.

(6) The director shall have authority to teach classes assigned to student-teachers, and to confer with the principal of the school in cases of discipline arising under the work of the student-teachers.

SUPERVISING TEACHERS

(7) Supervising teachers shall be nominated by the Professor of Education from the regular teachers employed in the high schools, and shall be approved by the Committee on High Schools.

(8) Their duties shall conform to the plan now or hereafter adopted by the Committee on High Schools.

(9) They shall receive from the University fifty dollars for each student-teacher of the first type assigned to them for the full time of such student-teacher and at that rate for any shorter period.

(10) Teachers who supervise the work of student-teachers of either type shall be entitled to attend any courses of instruction given by the Professor of Education free of charge, but work so pursued shall not count towards a degree unless tuition is paid.

#### **STUDENT-TEACHERS IN GENERAL**

(11) All candidates must hold the degree of A. B. or Ph. B. from a reputable college.

(12) All candidates must be satisfactory to the Superintendent of Public Schools, and to the Professor of Education in Brown University.

(13) Student-teachers shall take the courses in education arranged for them at Brown University. The same shall count as a major for the A. M. degree if the student-teacher desires.

(14) Student-teachers who successfully complete their work in the schools and at the college, shall receive a teachers diploma from the University. Weakness in discipline or scholarship shall be sufficient cause for withholding the diploma.

(15) In making appointments of regular teachers of the fourth grade; other things being equal, preference shall be given to those who have completed the course in training.

#### **STUDENT-TEACHERS OF THE FIRST TYPE**

(16) The Committee on High Schools shall appoint each year not less than six student-teachers (three of each sex unless otherwise agreed by the Committee and the Professor of Education).

(17) Such student-teachers shall be appointed by the Committee on High Schools from a list of candidates who fulfill the conditions specified above.

(18) They shall receive pay from the city for their services as teachers at the rate of \$400 per annum, and be subject to the same rules as other teachers, except as to the amount of work. Their work shall be arranged according to the plan now or hereafter adopted by the Committee on High Schools.

#### **STUDENT-TEACHERS OF A SECOND TYPE**

(19) Student-teachers of a second type may be appointed; they shall accomplish in the high school at least one hundred and twenty-five hours of

observation, individual instruction, and class teaching, under the supervision of competent teachers, to whom they shall render proper assistance in return for the instruction given.

(20) The mode and method of their work shall be determined by the Superintendent and the Professor of Education.

(21) They shall take the same courses at Brown as the other student-teachers.

(22) They shall not receive any pay from the city for their services.

(23) They shall be appointed by the Professor of Education and confirmed by the Committee on High Schools.

(24) When they have completed their courses and received a teacher's diploma from the University, they shall have the same status before the Committee on High Schools as if they had been student-teachers of the first type.

#### APPOINTMENTS IN THE GRAMMAR AND PRIMARY SCHOOLS

(25) Graduates of the University, who have successfully pursued a course in psychology and the courses in education offered in the junior and senior years, shall be eligible to appointment in the grammar and primary training schools of the city. Those who successfully complete this course in training shall be eligible to appointment in the grammar and primary schools of the city, or, with the approval of the Superintendent and the Professor of Education, to appointment as student-teachers of the first type. If appointed in the grammar or primary schools they shall have credit for experience which shall entitle them to receive five hundred dollars for the first year of service; and, if transferred to the high schools after one or more years of experience in the grammar or primary schools, such time of service may be counted as if it had been in the high schools.

#### PRACTICE TEACHING FOR SENIORS

(26) A limited number of seniors taking the course in education at Brown, shall be allowed to observe and teach in the grammar schools in a way similar to that provided for student-teachers of the second type in the high schools.

### History

#### European History

Professor MUNRO

1. *General Mediæval History of Europe.* Three hours. First Term.  
Required of all Juniors.

2. *General Modern History of Europe.* Three hours. Second Term  
Required of all Juniors.

15. *Islam and the Crusades.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

11. *The Period of the Renaissance.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

3. *The Period of the Reformation.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

16. *The French Revolution..* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

18. *Spanish History.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates. (Not offered in 1901-02.)

"The Seminary of European History," limited to a small number of Advanced Students, holds meetings devoted to the discussion of topics previously assigned.

#### **English and American History**

Professor MACDONALD

4. *English Constitutional and Political History to 1509.* Three hours. First Term. Elective for Juniors and Seniors.

5. *English Constitutional and Political History, 1509-1689.* Three hours. Second Term. Elective for Juniors and Seniors.

6. *English Constitutional and Political History since 1689.* Three hours. Third Term. Elective for Juniors and Seniors.

7. *Constitutional and Political History of the United States to 1763.* Three hours. First Term. Elective for Seniors.

8. *Constitutional and Political History of the United States, 1763-1829.* Three hours. Second Term. Elective for Seniors.

9. *Constitutional and Political History of the United States since 1829.* Three hours. Third Term. Elective for Seniors.

[10. *Principles of Historical Criticism.* One hour. Through the year. Elective for graduates.] Not offered in 1901-02.

[13. *History of Historical Writing in Modern Europe.* One hour. Through the year. Elective for Graduates.] Not offered in 1901-02.

[17. *Historical Bibliography.* One hour. Through the year. Elective for Graduates.] Not offered in 1901-02.

12. *Practical Course in English History.* One hour. Through the year. Elective for Graduates.

In 1901-02, the beginnings of party government in England.

14. *Practical Course in American History.* One hour. Through the year. Elective for Graduates and for Seniors who are taking 7, 8 and 9.

In 1901-02, the eve of the Revolution, 1763-1775.

The Historical Seminary, conducted by Professor MacDonald, and including the Graduate Students of history and a few of the most advanced Undergraduates, holds meetings devoted to original papers, to reports upon studies of methods, and to the historical reviews and journals.

### Social and Political Science

*NOTE: The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

Courses offered during the year 1901-1902, but omitted in 1902-1903.

<i>First Term.</i>	<i>Second Term.</i>	<i>Third Term.</i>
Political Science 13. National Administration.	Political Science 14. Local and Colonial Administration	Political Science 15. Municipal Government
Political Science 1. Problems of the State	Political Science 17. American Political Problems	Political Science 18. Political Parties
Social Science 5. History of Social Ideas	Social Science 1. Principles of Sociology	Social Science 4. The Social Ideal
Social Science 14 Social Statistics	Social Science 11. Study of Races	Social Science 13. History of Socialism
		Political Science 6 Principles of Roman Law

Courses offered during the year 1902-1903, but omitted in 1901-1902.

Political Science 3. International Law	Political Science 7. Foreign Diplomacy	Political Science 11. American Diplomacy
Political Science 4. Government of the United States	Political Science 2. Important European Governments	Political Science 19. Spanish American Governments
Political Science 5. Development of Political Ideas	Social Science 2. Social Problems	Political Science 16. Constitutional Law
Social Science 10. Social Institutions		Social Science 3. American Social Problems

Courses for Graduates only.

Social Science 7	Social Science 8	Social Science 9
Political Science 8	Political Science 9	Political Science 10

**Social Science**

12. *Elementary Course.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

Professor WILSON

1. *The Principles of Sociology.* Three hours. Second Term.

Professor DEALEY

2, 3. *Social Problems and Conditions.* Three hours. Second and Third Terms.

Professor WILSON

4. *Social Philosophy.* Three hours. Third Term.

Professor DEALEY

5. *Development of Social Theory.* Three hours. First Term.

Professor DEALEY

7, 8, 9. *Current Social Theory and Practice.* One hour. Through the year. Elective for Graduates.

Professors WILSON and DEALEY

10. *Social Institutions.* Development, Forms, Importance, e. g. The Family, Church, School, etc. Three hours. First Term.

Professor DEALEY

11. *Demography.* Dispersion of Races. Social Study of Race Characteristics. Three hours. Second Term.

Dr. WILLETT

13. *Socialism.* Ancient and Modern. Especial attention to present phases of the theory. Three hours. Third Term.

Dr. WILLETT

14. *Social Statistics.* Method of gathering and handling data in the study of social problems and conditions. Three hours. First Term.

Dr. WILLETT

**Political Science.**

12. *Elementary.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12.

Professor DEALEY

1. *The State.* Three hours. First Term.

Professor DEALEY

2. *Comparative Study of Constitutions.* Three hours. Second Term.

Professor DEALEY

3. *International Law and Relations.* Three hours. First Term.

Professor WILSON

4. *United States Constitutions.* Three hours. First Term.

Professor DEALEY

5. *Development of Political Theory.* Three hours. First Term.  
Professor DEALEY
6. *Roman Law.* Three hours. Third Term.  
Professor DEALEY
7. *Diplomacy.* Three hours. Second Term. Elective for students who have completed Political Science 3.  
Art and practice of international negotiation.  
Professor WILSON
- 8, 9, 10. *Current Political Theory and Practice.* One hour. Through the year. Elective for Graduates.  
Professors WILSON and DEALEY
11. *Diplomacy.* American Development and Problems. Three hours. Third Term. Elective for students who have completed Political Science 3.  
Professor WILSON
13. *Administration.* Principles and National Systems. Three hours. First Term.  
Professor WILSON
14. *Administration.* Local and Colonial. Three hours. Second Term. Elective for those students who have completed Political Science 13.  
Professor WILSON
15. *Municipal Functions and Administration.* Three hours. Third Term.  
Professor WILSON
16. *Constitutional Law.* Principles and Development. Special reference to Constitution of the United States. Three hours. Third Term.  
Professor DEALEY
17. *Political Problems.* Especially those of the United States. Three hours. Third Term.  
Professor WILSON
18. *Political Parties.* Development in the United States and in Europe. Three hours. Third Term.  
Professor WILSON
19. *The Spanish Republics.* Governments and Social Conditions. Three hours. Third Term.  
Professor DEALEY

**Elementary Law**

Mr. BARROWS

4. *Torts and Criminal Law.* Three hours. First Term. Elective for Juniors and Seniors.
7. *Equity.* Three hours. Second Term. Elective for Juniors and Seniors.

8. *Equity.* Three hours. Third Term. Elective for students who have passed in 7.

Courses 1, 2, 3, 5, 6, 9 will be omitted during the year 1901-1902.

### Political Economy

12. *Political Economy, elementary.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12 and Political Science 12.

*NOTE: The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

Professor GARDNER

1, 2, 3. *General Economics.* Three hours. Through the year. Elective for Juniors and Seniors.

Based on Hadley's Economics.

Professor GARDNER and Dr. WILLETT

*NOTE: All students who, having taken the introductory courses, intend to continue work in this department are strongly advised to begin with 1, 2, 3. Other courses may, if desired, be taken advantageously at the same time. These courses take the place of 13, 14, previously offered.*

6, 7. *Money and Banking.* With special reference to the history of money and banking in the United States. Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates.

Professor GARDNER

6a, 7a. Three hours. First and Second Terms. To be taken only in connection with 6 and 7. See note.

Professor GARDNER and Dr. WILLETT

15. *The Labor Movement,* with special reference to Trade Unions. Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Dr. WILLETT

15a. Three hours. First Term. To be taken only in connection with 15. See Note.

Professor GARDNER and Dr. WILLETT

16. *Industrial Corporations, their history, significance and regulation.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Special attention will be given to railways and other quasi-public corporations and to the recent tendency to industrial combinations.

Professor GARDNER

16a. Three hours. Second Term. To be taken only in connection with 16. See Note.

Professor GARDNER and Dr. WILLETT

18. *History of Economic Thought.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Dr. WILLETT

**NOTE:** In connection with courses 6, 7, 15, 16, students will be permitted to take additional work principally of the nature of the statistical investigation of special problems and the formulation of results in diagrams. This additional work will require six hours of attendance, as in laboratory courses, and will count for three hours. These additional courses are designated 6a, 7a, 15a, 16a, respectively.

With the exception of 12, 1, 2 and 3, which will be given every year some or all of the above courses will be omitted in 1902-3 and their places taken by other courses.

## The Fine Arts

### History and Criticism

Professor POLAND

1. *Ancient Art or Classical Archaeology.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

**NOTE:** Courses 1, 4 and 6 may be taken independently, but students are advised to elect all three in the above order. Students are strongly advised to take 1, if possible, before any other course in the History of Art. A knowledge of Greek, Latin, German and French is very helpful to those who pursue even the general courses in this department.

4. *Roman, Early Christian and Mediæval Art.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

6. *Art of the Renaissance.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

7, 9. *Modern Art.* Three hours. First and Second Terms. Elective for students who have passed in 6.

**NOTE:** Course 7 is sequent to Course 6. Courses 7, 9 and 8 form a consecutive outline.

8. *Theory and Criticism of the Fine Arts.* Three hours. Third Term. Elective for students who have passed in any course in the History of Art.

Courses 1 and 4 (both courses) furnish a good preparation for Course 8.

Courses 10, 11, 3, 12, will not be offered in 1901-02.

**NOTE:** The restrictions formerly made in regard to courses 7 and 9 in the History of Art, which were removed in 1900-01, are now restored. Course 7 will be open hereafter to those students only who have passed in course 6, and course 9 will be open to those students only who have passed in course 7.

The text-book in course 1 is Tarbell's History of Greek Art, the text-books in course 7 are Goodyear's Renaissance and Modern Art and Poland's Art in the Seventeenth and Eighteenth Centuries. Students must have their text-books at the opening of the term, and no excuse based on a failure to obtain a text-book will be accepted after recitations begin.

### MUSIC

Professor ASHTON

1, 2, 3. *Harmony.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

**NOTE:** Courses 1 to 9 inclusive are sequential and must be taken in order.

4, 5, 6. *Counterpoint.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

14. *Musical Introduction.* Three hours. Second Term. Elective for Juniors and Seniors who have not passed in or who are not taking 10, 11, 12.

15. *Music and Musicians of the Nineteenth Century.* Three hours. Third Term. Elective for Juniors and Seniors who have not passed in or who are not taking 10, 11, 12.

20, 21, 22. *The Symphony.* Three hours. Through the year. Elective for Graduates.

Courses 7, 8, 9, 10, 11, 12, 13 will not be offered in 1901-02.

### INDO-EUROPEAN PHILOLOGY

Professor ALLINSON

1. *General Introduction to the Study of Language.* Three hours. Second Term. Elective for Juniors and Seniors.

Outline of the history of language. The Indo-European family. Adapted for students of ancient or modern languages.

10, 11, 12. Sanskrit, advanced. One hour. Through the year. Elective for students who have passed in 4, 5, 6 or an equivalent.

Vedic hymns and other selections.

Courses 4, 5, 6, 7, 8, 9 will not be offered in 1901-02.

## Greek Literature and History

1. *Lysias.* Three hours. *Greek History.* One hour. First Term. Required of candidates for the degree of Bachelor of Arts.

Professors MANATT, ALLINSON, GREENE and Mr. HALLETT

2. *Plato.* Three hours. *Greek History.* One hour. Second Term. Required of candidates for the degree of Bachelor of Arts.

Professors MANATT, ALLINSON, GREENE and Mr. HALLETT

3. *Homer.* Three hours. *Greek Language and Literature.* One hour. Third Term. Required of candidates for the degree of Bachelor of Arts.

Professors MANATT, ALLINSON, GREENE and Mr. HALLETT

4. *Herodotus.* Three hours. First Term. Elective for Sophomores.

Books vi and vii, with collateral reading of Aeschylus' *Persians* and Plutarch's *Themistocles* and *Aristides* in English.

Professor MANATT

6. *Dramatic Poets.* Three hours. Second Term. Elective for Sophomores.

Euripides, Iphigenia in Tauris and Alcestis, with lectures on the Greek Drama.

Professor ALLINSON

5. *Lucian.* Three hours. Third Term. Elective for Sophomores.

Professor ALLINSON

12. *Aeschines and Demosthenes.* Three hours. Second Term. Elective for students who have completed courses 1-6 or equivalent work.

Professor MANATT

23, 24. *Modern Greek.* One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Professor MANATT

45. *The Drama.* Three hours. First Term. Elective for Juniors and Seniors.

Euripides and Aristophanes, Medea and The Frogs, with rapid reading of one play from Aeschylus for literary criticism.

Professor ALLINSON

44. *Homer.* Three hours. Second Term. Elective for Juniors and Seniors.

Professor MANATT

28. *Lucian.* Three hours. Third Term. Elective for Juniors and Seniors.

Professor ALLINSON

43. *Greek Composition, advanced.* One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Professor ALLINSON

32, 33. *Attic Orators.* Two hours. First and Second Terms. Elective for Graduates and approved Seniors.

Isæus. Aeschines and Demosthenes' Speeches on the Gown.  
Professor MANATT

34, 35, 36. *Greek Seminary.* One two-hour session weekly. Through the year. Elective for Graduates and approved Seniors.

First Term (a) Demosthenes' Private Speeches.

Second Term (b) Aristophanes or Sophocles.

Third Term (b) Sophocles or Comic Fragments.

Professor MANATT (a) and Professor ALLINSON (b)

Courses 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 25, 26, 41, 42, will not be offered in 1901-02.

### Roman Literature and History

1. *Livy.* Four hours. First Term. Required of candidates for the degree of Bachelor of Arts.

Professors HARKNESS and GREENE, Mr. GOULDING

2. *Cicero.* Four hours. Second Term. Required of candidates for the degree of Bachelor of Arts.

Professors HARKNESS and GREENE, Mr. GOULDING

3. *Tacitus.* Four hours. Third Term. Required of candidates for the degree of Bachelor of Arts.

Professor GREENE, Messrs. SHIPPEE and GOULDING

4. *Horace.* Three hours. First Term. Elective for Sophomores.

Professor GREENE

5. *Catullus, Tibullus and Propertius.* Three hours. Second Term. Elective for Sophomores.

Professor GREENE

6. *Satires of Horace and Juvenal.* Three hours. Third Term. Elective for Sophomores.

Professor HARKNESS

7. *Origin of Latin Poetry and Development of the Drama.* Three hours. First Term. Elective for Juniors and Seniors.

Professor HARKNESS

**NOTE:** The advanced courses open to Juniors and Seniors relate to the development and history of Roman Literature. Poetry and prose are discussed in alternate years.

8. *Poetry of the Republic, continued, and Poetry of the Augustan Age* Three hours. Second Term. Elective for Juniors and Seniors.

Professor HARKNESS

9. *Poetry of the Silver Age.* Three hours. Third Term. Elective for Juniors and Seniors.

Professor HARKNESS

37, 38, 39. *Latin Composition.* One hour. Through the year. Elective for Junior and Seniors.

Professor GREENE

10, 14, 15. *Private Life and Antiquities of Rome.* One hour. Through the year. Elective for Juniors, Seniors and Graduates. This course consists of lectures and the study of works in English relating to the subjects treated. (See 16, 17, 18).

Professor HARKNESS

16, 17, 18. *Private Life and Antiquities of Rome.* One hour. Through the year. Elective for Juniors, Seniors and Graduates. Illustrated by selections from Petronius, Martial, Pliny, Gillius and others.

Professor HARKNESS

**NOTE:** Either 10, 14, 15, or 16, 17, 18, may be taken separately as a one hour course, or the two courses may be taken as supplementary to each other counting as two hours per week.

40, 41, 42. *Seminary in the Latin Prose of the Empire.* Two hours. Through the year. Elective for Graduates. Gudeman's "Latin Literature of the Empire, Vol. I, Prose."

Professor HARKNESS

Courses 11, 12, 13, 31, 32, 33, 19, 20, 21, 22, 23, 24, 28, 29, 30, 34, 35, 36, will not be offered in 1901-02.

### English Literature and Language

1, 2, 3. *Practical Rhetoric.* Four hours. Through the year. Required of all Freshmen who are not candidates for the degree of Bachelor of Arts, and of all Sophomores who have not taken the subject in the Freshman year.

Professors DAMON and BENEDICT, Messrs. LATHAM, CHASE, HERSEY and WILLIAMSON

4, 5, 6. *Argumentative Composition.* One hour. Through the year. Required of all Juniors.

Professors DAMON and BENEDICT, Messrs. LATHAM, CHASE, HERSEY and WILLIAMSON

7, 8, 9. *English Composition, advanced.* Three hours. Through the year. Elective for a limited number of students who have passed in 1, 2, 3.

Professor DAMON

11, 12. *Debate.* Three hours. Second and Third Term. Elective for a limited number of Juniors, Seniors and Graduates who have passed in at least one term of argumentation.

Juniors may substitute one term of this course for 5, 6.

Professors GARDNER, DEALEY and CROSBY

13, 14, 15. *Public Speaking.* Three hours. Through the year. Elective for all Undergraduates.

Professor CROSBY

16, 17, 18. *English Literature, introductory.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Designed to cultivate an intelligent appreciation of the greater poets and prose-writers, and to give a general knowledge of the history of English literature.

Professor BRONSON

19, 20, 21. *Old English.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Professor POTTER

22, 23, 24. *Middle English.* Three hours. Through the year. Elective for students who have passed in 19, 20, 21.

Professor POTTER

25, 26, 27. *Chaucer.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Professor BENEDICT

28, 29, 30. *Historical Grammar of the English Language.* Three hours. Through the year. Elective for students who have passed in 19, 20, 21 or 25, 26, 27.

Professor POTTER

67, 68, 69. *Shakspere.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18, and for others at the discretion of the instructor.

A literary course, intended for purposes of general culture. All the plays will be read and the greater plays will be studied as to style, sources and structure of plot, character-portrayal, and *motif*. As an aid to the broader appreciation of Shakspere, some attention will be paid to the history of the English Drama, and a few plays by some of Shakspere's contemporaries, as Marlowe, Jonson, Beaumont and Fletcher, Dekker, and Webster, will be read and discussed.

Professor POTTER

34, 35, 36. *English Literature, exclusive of the Drama, from 1600 to 1660.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.

The course will centre in Milton.

Professor BRONSON

58, 59, 60. *English Literature from 1832, the Essayists and the Novelists.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18, and for others at the discretion of the instructor.

A study of the chief tendencies of English thought as reflected especially in the prose writers of the period, with brief considerations of contemporary poetry. Emphasis will be put on actual acquaintance with the works of the author studied. Lectures with occasional written reports on assigned subjects.

Professor POTTER

61, 62, 63. *American Literature.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.

Professor SEARS

64, 65, 66. *Seminary in English Literature.* Three hours. Through the year. Elective for Graduates, and for Seniors who have passed with credit in two or more courses in English Literature. Number of members limited to ten.

Subject in 1901-02: The Principles of Literary Art. The study will be chiefly inductive, with special attention to the psychological basis of literary effects.

Professor BRONSON

The following courses will not be offered in 1901-02: 31, 32, 33 (*English Literature from 1400 to 1600*), 37, 38, 39 (*The English Drama*), 40, 41, 42 (*Shakspere, the linguistic course*), 43, 44, 45 (*Spenser, Shakspere, Milton*), 46, 47, 48 (*English Literature from 1660 to 1798*), 49, 50, 51 (*English Literature from 1798 to 1832*), 52, 53, 54 (*English Literature from 1832, the Greater Writers*), 55, 56, 57 (*English Literature from 1832, the Poets*).

## Germanic Languages and Literatures

### German

1, 2, 3. *Introductory Course.* Three hours. Through the year. Required of all Sophomores who did not present German for admission.

4, 6, 8. *Course in Classical Drama.* Three hours. Through the year. Elective for students who have passed in 1, 2, 3. Required of all who presented German for entrance, and of all who are to take advanced courses.

Lessing, Schiller, Goethe. The course is an introduction to German Literature, and is recommended for the general student.

5, 7, 9. *Modern Authors.* Three hours. Through the year. Parallel to 4, 6, 8, and elective for students who have passed in 1, 2, 3.

This course, to vary in details from year to year, presents the best epics, ballads, lyrics, and especially the historical and narrative prose of the nineteenth Century.]

46, 47, 48. *Goethe's Faust, Parts I and II.* Three hours. Through the year. Elective for students who have passed in 8.

NOTE: The course in *Faust* may be omitted in 1902-03.

16, 17, 18. *German Literature.* Three hours. Through the year. Elective for students who have studied German not less than two years.

The principal literary movements in Germany are studied.

Lectures, reports on assigned topics, extended reading. The subject for 1901-02 will probably be The Post-Classical Period.

40, 41, 42. *Composition.* One hour. Through the year. Elective only for students pursuing the regular courses of the second or third year in German, and for those who have passed in 48.

10, 11, 12. *Middle High German.* Three hours. Through the year. Elective for students who have had at least one year of German.

NOTE: This course, like the following courses in German and those in Gothic and Old Norse, is primarily for Graduates, but may be taken by qualified Undergraduates. Some changes may be made in the graduate courses.

[19, 20, 21. *Old High German.* One hour. Through the year. Elective for Graduates.] Not offered in 1901-02.

[34, 35, 36. *Germanic Philology.* Two hours. Through the year. Elective for Graduates.] Not offered in 1901-02.

28, 29, 30. *Germanic Mythology.* One hour. Through the year. Elective for all who read German with ease.

Based upon Mogk's *Deutsche Mythologie*, Lectures, Essays.

#### **Old Norse**

Old Norse 1, 2, 3. Two hours. Through the year. Elective for Graduates and others who are qualified.

Professor CROWELL

#### **Gothic**

[Gothic 1, 2, 3. One hour. Through the year. Elective for Graduates and others who are qualified.] Not offered in 1901-02.

### **XII. Romance Languages and Literatures**

#### **French**

A, B, C. *Elementary French.* Three hours. Through the year Required of all Sophomores who did not present French for admission.

Mr. MORSE

1, 2, 3. *Language.* Three hours. Through the year. Required of all Freshmen who presented French for admission.

Professor JOHNSON, Messrs. MORSE and NORRIS

4, 5, 6. *Literature.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

Professor JOHNSON and Mr. MORSE

37, 38, 39. *The French Drama.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed creditably in French 1, 2, 3.

From Corneille to Rostand with special study of its classical and romantic sources and influences.

Professor LANGDON

French 13, 14, 15; 31, 32, 33; 28, 29, 30; 34, 35, 36 and Comparative Literature 1, 2, 3 will not be offered in 1901-02.

### **Italian**

1, 11, 12. *Modern Italian and Dante in the Original.* Three hours. Through the year. Elective for Juniors and Seniors, and especially recommended to Graduates pursuing linguistic and literary studies.

Professor LANGDON

Courses 1, 2, 3; 10, 11, 12 will not be offered in 1901-02.

### **Spanish**

1, 2, 3. *Modern Spanish.* Three hours. Through the year. Elective for Juniors, and for Sophomores not electing more than one other modern foreign language.

Professor JOHNSON

4, 5, 6. *Advanced Course.* Three hours. Through the year. Elective for Juniors and Seniors who have passed in 1, 2, 3.

Professor JOHNSON

## **Biblical Literature and History**

### **Hebrew**

1, 2. *Elementary Hebrew.* Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates.

Professor FOWLER

3. *Historical Hebrew.* Three hours. Third Term. Elective for students who have passed 1 and 2.

Professor FOWLER

4, 5, 6. *Hebrew Seminary.* Three hours (one session weekly). Through the year. Elective for those who have had the equivalent of 1, 2 and 3.

The Prophetic Literature of the Old Testament. Critical analysis and translation of the prophetic writings and chronological arrangement of the different sections with a view to gaining

definite and comprehensive ideas of the origin, development and significance of Hebrew prophecy.

Professor FOWLER

**NOTE:** In succeeding years corresponding courses in the Psalm, Wisdom and Legal Literature of the Old Testament will be offered.

#### Aramaic

1. *Biblical Aramaic.* Two hours. First Term. Elective for students who have passed in Hebrew 1, 2 and 3.

Mr. GRAD

#### Syriac

1. *Syriac.* Two hours. Second and Third Terms. Elective for students who have passed in Aramaic 1.

Mr. GRAD

#### Arabic

[1, 2, 3. *Elementary Arabic.* Two hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1901-02.

Professor FOWLER

### New Testament Language and Literature

7. *Book of Acts.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Interpretation; analysis of structure; study of authorship; history and institutions of primitive Christianity.

Professor FOWLER

6. *The Epistles to the Thessalonians and Galatians.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Interpretation and general investigation of the origin, aim, characteristics and contents of the New Testament epistles.

Professor FOWLER

3. *Paul's Corinthian and Roman Epistles.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Rapid reading; analysis of thought; study of Pauline teaching.

Professor FOWLER

### Biblical Literature and History In English

1. *Jewish History and Literature.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

The life and thought of the Jewish people between the fall of Jerusalem in 586 and the re-dedication of the Temple in 165 B. C.

Professor FOWLER

2. *New Testament History and Literature.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors.

Study of the Jewish and Roman life, which constitutes the background of the New Testament, and an investigation of the date, authorship and general character of the Jewish and Christian literature of the period between 165 B. C. and 200 A. D.

Professor FOWLER

3. *The Beginnings of Christianity.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Historical study of the life and teachings of Jesus and of the first half century of the Christian Church.

Professor FOWLER

**NOTE:** Courses, 1-6, are for general students as well as for those intending special Biblical work. They are not repeated in successive years, but form a two years's consecutive course, giving a comprehensive view of the entire field of Biblical history. The sources, Biblical and monumental, for each epoch, are studied; then the political, social and religious life and development. The date and authorship of books and the various other questions of literary history for each period are examined, and the teachings of the several documents are drawn out and formulated.

*Biblical Research Club.* A Biblical Research Club, including graduate and undergraduate students interested in the work of the department, has been formed to investigate special Biblical subjects and to promote a more general and intelligent interest in the study of the literature and history of the Bible. The club meets once a month for the review of new books and current literature, reading of papers and free discussion. Arrangements are also made for special addresses before the club.

New Testament 1, 2, 5 and Biblical Literature 4, 5, 6 will not be offered in 1901-02.

### Pure Mathematics

1. *Geometry, Solid and Spherical.* Five hours. First Term. Required of candidates for the degree of Bachelor of Arts, Bachelor of Philosophy, Civil Engineer or Mechanical Engineer.

Professors CLARKE, DAVIS, MANNING and SLOCUM, Messrs. CURRIER, LESTER and DAVIS

3. *Algebra.* Five hours. Second Term. Required of candidates for the degree of Bachelor of Arts, Bachelor of Philosophy, Civil Engineer or Mechanical Engineer.

Professors CLARKE, DAVIS, MANNING and SLOCUM, Messrs. CURRIER, LESTER and DAVIS

2. *Trigonometry, Plane and Spherical.* Five hours. Third Term. Required of candidates for the degree of Bachelor of Arts, Bachelor of Philosophy, Civil Engineer or Mechanical Engineer.

Professors CLARKE, DAVIS, MANNING and SLOCUM, Messrs. CURRIER, LESTER and DAVIS

4. *Spherical Trigonometry.* One hour. First Term. Required of candidates for the degree of Bachelor of Science.

Mr. MILLER

5, 6, 7. *Algebra.* One hour. First Term. Two hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Science.

Mr. MILLER

8. *Determinants and Theory of Equations.* Three hours Third Term. Elective for students who have passed in 3, or 5, 6, 7.

Professor MANNING

9, 10. *Analytic Geometry.* Three hours. First and Second Terms. Elective for students who have passed in 1, 2 and 3. Required of candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer.

Professor DAVIS

10. *Solid Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10.

Professor MANNING

12. *Differential Calculus.* Three hours. Third Term. Elective for students who have passed in 9 and 10; required of candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer.

Professor DAVIS

13. *Integral Calculus.* Three hours. First Term. Elective for students who have passed in 12; required of candidates for the degree of Civil Engineer or Mechanical Engineer.

Professor DAVIS

14. *Applications of the Differential Calculus.* Three hours. Second Term. Elective for students who have passed in 12 and 13; required of candidates for the degree of Civil Engineer or Mechanical Engineer.

Professor DAVIS

15. *Applications of the Integral Calculus.* Three hours. Third Term. Elective for students who have passed in 13; required of candidates for the degree of Civil Engineer.

Professor DAVIS

15, 16. *Differential Equations.* Three hours. First and Second Terms. Elective for students who have passed in 13.

Professor MANNING

**21, 22, 23.** *Theory of Functions.* Three hours. Through the year. Elective for Graduates, and for candidates for the degree of Bachelor of Science who have passed in 16.

Professor MANNING

**24, 25, 26.** *Differential Equations, advanced.* Three hours. Through the year. Elective for Graduates who have passed in 16.

Professor MANNING

**27, 28, 29.** *Substitutions and Transformation Groups.* Three hours. Through the year. Elective for Graduates.

Professor MANNING

Courses 11; 18, 19, 20; 32, 33, 34; 35, 36, 37 will not be offered in 1901-02.

## Drawing

**1.** *Elementary Mechanical Drawing.* Four hours. First Term. Required of Freshmen who are candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy.

Professors RANDALL and KENERSON and Mr. PHETTEPLACE

**16.** *Elementary Mechanical Drawing.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Six hours of drawing. Similar to 1.

Professors RANDALL and KENERSON and Mr. PHETTEPLACE

**5, 6.** *Descriptive Geometry.* Four hours. Second and Third Terms. Required of Freshmen who are candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy and have passed in 1.

Three hours of recitation and two hours of drawing.

Professors RANDALL and KENERSON

**17, 18.** *Descriptive Geometry.* Three hours. Second and Third Terms. Elective for Sophomores, Juniors and Seniors who have passed in 1 or 16.

Two hours of recitation and two hours of drawing. A continuation of 16.

Professors RANDALL and KENERSON

**7.** *Shades and Shadows and Perspective.* Three hours. First Term. Required of candidates for the degree of Civil Engineer or Mechanical Engineer. Elective for students who have passed in 5, 6, or 17, 18.

Two hours of recitation and two hours of drawing.

Professor RANDALL

14. *Shades and Shadows and Perspective, advanced.* Three hours. Third Term. Elective for students who have passed in 7.

Professor RANDALL

8. *Elementary Machine Drawing.* Three hours. Second Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 5, 6, or 17, 18.

One hour of recitation and five hours of drawing.

Professors RANDALL and KENERSON and Mr. PHETTEPLACE

9. *Gearing.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Mechanical Engineering 1, and in Drawing 5, 6, or 17, 18.

One hour of recitation and four hours of drawing.

Professor BURNHAM

10, 11. *Machine Drawing, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 8 and 9.

Six hours of drawing.

Professor BURNHAM

12. *Elements of Machine Design.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Mechanical Engineering 1, and in Drawing 10, 11.

Six hours of drawing.

Professor BURNHAM

27, 28. *Machine Design, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 10, 11 and 12, and in Mechanics 3, 4 and 6.

One hour of recitation and four hours of calculation and drawing.

Professor BURNHAM

15. *Constructive Geometry.* Three hours. Through the year. Elective for students who have passed in 1 or 16.

Six hours of drawing.

Professors RANDALL and KENERSON

13. *Constructive Geometry.* Four hours. First Term. Elective for students who have passed in 1 or 16.

Eight hours of drawing. Similar to 15.

Professors RANDALL and KENERSON

19. *Mechanical Drawing.* Three hours. Second Term. Elective for students who have passed in 16.

Six hours of drawing.

Professors RANDALL and KENERSON

20. *Mechanical Drawing, continued.* Three hours. Third Term. Elective for students who have passed in 19.

Six hours of drawing.

Professors RANDALL and KENERSON

2, 3, 4. *Freehand Drawing.* One hour. Through the year. Required of candidates for the degree of Civil Engineer or Mechanical Engineer.

Two hours of drawing.

Professor KENERSON and Mr. PHETTEPLACE

## Civil Engineering

1, 2, 3. *Surveying.* Three hours. Through the year. Elective for students who have passed in Mathematic 1, 2 and 3 and in Drawing 1 or 16.

Professor HILL and Mr. MILLER

**NOTE:** All courses in this department are required of candidates for the degree of Civil Engineer; all except 4, 25, 26, 27 are elective for other students.

4. *Topographical Drawing.* Three hours. Second Term.

Six hours of drawing.

Mr. MILLER

8, 8a. *Surveying, advanced.* One hour and five hours. Third Term. Elective for students who have passed in 1 and 2, but 8 and 8a cannot be elected separately. The field work (8a) is done during the spring recess.

Professor HILL and Mr. MILLER

5, 5a, 6, 7. *Railroad Engineering.* Two, four, three and three hours. First, Second and Third Terms. Elective for students who have passed in 3 and 8, but 5 and 5a cannot be elected separately.

Professor HILL and Mr. MILLER

10. *Hydraulic Engineering.* Three hours. Second Term. Elective for Juniors and Seniors.

Professor HILL

11. *Hydraulic Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13 and Mechanics 4.

Supplements the courses in Mechanics 7 and 8, which give the theoretical treatment of the subject.

Professor HILL

15. *Masonry.* Three hours. Second Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Professor HILL

16. *Geodesy.* Three hours. Second Term. Elective for students who have passed in 3 and 8 and Astronomy 4.

Professor HILL

17. *Sanitary Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Professor HILL

18. *Roads and Pavements.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Mr. MILLER

19, 20, 21. *Laboratory Investigations.* Three hours. Through the year. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Professor HILL

NOTE: For 1901-02 students in Civil Engineering will take Mechanical Engineering 6 and 7 in place of Civil Engineering 19 and 20.

25, 26, 27. *Lettering.* One hour. Through the year.

Two hours of drawing.

Professor HILL

28. *Framed Structures.* Three hours. Third Term.

Mr. MILLER

NOTE: Courses 28 to 32, inclusive, are elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 1 or 16.

29. *Structural Details.* Three hours. First Term.

Mr. MILLER.

30. *Roof Design and Graphic Statics.* Three hours. First Term. Elective for students who have passed in 28, 29.

Mr. MILLER

31. *Bridge Design.* Six hours. Second Term. Elective for students who have passed in 30.

Mr. MILLER

32. *Bridges.* Three hours. Third Term. Elective for students who have passed in 28.

Mr. MILLER

## Mechanical Engineering

**1.** *Kinematics.* Three hours. First Term. Elective for students who have passed in Drawing 5, 6, or 17, 18.

Professor BURNHAM

**9.** *Thermodynamics of the Steam Engine.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Physics 1, 2 4 and in Mathematics 12, 13 and 14.

Professor BURNHAM

**3, 4, 5.** *Steam Engineering.* Three hours. Through the year. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 9.

Professors BURNHAM and KENERSON

**6, 7, 8.** *Materials of Engineering.* Three hours. Through the year. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Mechanics 3, 4, 6.

Professors BURNHAM and KENERSON and Mr. PHETTEPLACE

**10, 11, 12.** *Wood-work.* Three hours. Required of candidates for the degree of Mechanical Engineer. Elective for Sophomores, Juniors and Seniors.

Six hours of attendance.

Mr. LESTER

**NOTE:** Though courses 10 to 18 are all open to Sophomores, Juniors and Seniors, no more than two of them may be counted towards the degree of Bachelor of Arts, Bachelor of Philosophy or Bachelor of Science.

**13, 14, 15, 16.** *Metal-work.* Three hours. Required of candidates for the degree of Mechanical Engineer. Elective for Sophomores, Juniors and Seniors.

Six hours of attendance. These courses may be begun in any term. See note under 10, 11, 12.

Mr. STARK

**17.** *Wood-work.* Three hours. Elective during any term for Sophomores, Juniors and Seniors.

Six hours of attendance. See note under 10, 11, 12.

Mr. LESTER

**18.** *Metal-work.* Three hours. Elective during any term for Sophomores, Juniors and Seniors.

Six hours of attendance. See note under 10, 11, 12.

Mr. STARK

**Thesis.** A graduation thesis is required of all students who are candidates for the degree of Mechanical Engineer. It may be based either on

extended independent study, on original experiments by the student, or on an original design of some complicated machine. In any case it must exhibit satisfactory ability in the student as an engineer.

### Mechanics

**3, 4, 6. Mechanics of Solids.** Three hours. Through the year. Elective for students who have passed in Mathematics 9, 10 and 12, and who are taking Mathematics 13.

Professor CLARKE

**7, 8. Mechanics of Fluids.** Three hours. First and Second Terms. Elective for students who have passed in 3, 4, 6.

Professor CLARKE

### Astronomy

**1, 2, 6. General Astronomy.** Three hours. Through the year. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

Professor UPTON

**3, 4, 5. Geodetic Astronomy.** Three hours. Through the year. Required of engineering students. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

Professor SLOCUM

**8, 9, 10. Practical Astronomy.** Three hours. Through the year. Elective for Graduates and for Undergraduates who have shown special aptitude in either 1, 2, 6 or 3, 4, 5.

Professor UPTON

**14, 15, 16. Mathematical Astronomy.** Three hours. Through the year. Elective for Graduates.

Professor UPTON

### Physics

**1, 2, 4. Elementary Physics.** Three hours. Through the year. Elective for Sophomores, Juniors, Seniors, and others who have passed in Mathematics 1, 2, 3.

First Term, kinematics and dynamics; Second Term, molecular physics and heat; Third Term, electricity alternating with light.

Professor BARUS

**32. Optics and Acoustics.** Three hours. Third Term. Elective for Juniors and Seniors who have passed in 1, 2.

Professor BARUS

**NOTE:** This course alternates with 2, for the convenience of the other courses; 2 will be given this year.

**5, 9, 10. Physical Measurements.** Three hours. Through the year. Elective for students who have passed in 1, 2, 4.

One lecture hour and four hours in the laboratory.

Professor PALMER

**11. Electrical Engineering.** Three hours. First Term. Elective for students who have passed in 4.

Definite instruction in methods of generating and utilizing electric currents; introductory to the technical courses.

Professor WATSON

**12. Electrical Engineering.** Three hours. Second Term. Elective for students who have passed in 11, and who have taken or are taking 5, 9, 10, and Mathematics 12.

Two hours of recitation, and two hours of laboratory practice. Technical study of theory and calculations for dynamo-electric machinery.

Professor WATSON

**15. Electrical Engineering.** Three hours. Third Term. Elective for students who have passed in 11 and 12.

One hour of recitation and four hours of laboratory work. Practical methods of operating and testing various sizes of standard dynamos, and measuring electric and magnetic quantities.

Professor WATSON

**33, 34, 35. Electrical Engineering.** Three hours. Through the year. Elective for students who have passed in 15.

A continuation of 11, 12, 15. Alternating current phenomena mathematically treated, definite engineering problems worked out. Advanced laboratory work included.

Professor WATSON

**13, 14, 16. Mathematical Treatment of Dynamical Problems.** Three hours. Through the year. Elective for Seniors and Graduates who have passed in 10 and Mathematics 16.

Professor PALMER

**17, 18, 19. Laboratory Course, advanced.** Three hours. Through the year. Elective for students who have passed in 10.

Professors BARUS, PALMER and WATSON

**20, 21. Harmonic Analysis and Method of Least Squares.** Three hours. Second and Third Terms. Elective for Seniors and Graduates who have passed 1, 2, 4 and Mathematics 14, 15.

Professor BARUS

**22. Behavior of Matter through Long Ranges of Temperature.** Elective for Graduates.

Original research.

Professor BARUS

**NOTE:** Courses 22 to 25, inclusive, occupy more or less time a week, according to the requirements of the students. These courses are definitely organized, and the requisite apparatus is provided for conducting them. Other courses of original research are offered to

suit the special needs or training of advanced students. The order of interchange between 13, 14, 16, and 26, 27, 28, and between 20, 21 and 29, 30, 31, is not fixed. The preference of the applicants for instruction will be regarded in determining which shall be given.

23. *Behavior of Matter through Long Ranges of High Pressure.* Elective for Graduates.

Original research.

Professor BARUS

24. *Absolute Viscosity of Solids as compared with Liquids and Gases*  
Elective for Graduates.

Original research.

Professor BARUS

25. *Physical Properties of the Iron Carburets.* Elective for Graduates.  
Original research.

Professor BARUS

- 26, 27, 28. *Mathematical Theory of Electricity and Magnetism.* Three hours. Through the year. Elective for Graduates and Seniors who have passed in 10 and Mathematics 16.

Professor PALMER

NOTE: This course alternates with 13, 14, 16.

- 29, 30, 31. *Physics, advanced.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in Mathematics 12, 13 and 14.

Professor BARUS

NOTE: Candidates for the degree of Master of Arts with a major in physics will be held responsible for at least one of the advanced courses in theoretical physics. The requirements for non-resident students with a minor in physics are quite as advanced as for students in residence with a major in physics. The department is able to offer every reasonable facility both for research work and for the study of the higher problems in physics; it is not able to offer much encouragement to those wishing to take degrees not in residence.

The Department of Physics announces the organization of a complete course leading to the degree of Bachelor of Science in Electrical Engineering.

Physics 11, 12, 15, 33, 34, and 35 form the nucleus of the course, and these topics may still be elected by candidates for any degree. The additional courses, each of three hours per week, required for the degree in engineering are:

Physics 36. Precision laboratory measurements of electrical and magnetic quantities.

Professor PALMER

And the following by Professor WATSON:

Physics 40. Development and Scope of Industrial Electricity.

Physics 41. Telephone and Telegraph Engineering.

Physics 42. Design and Calculation of Direct Current Machinery.

Physics 43. Electric Railway Engineering.

Physics 44. Design and Calculation of Alternating Current Machinery

Physics 45. Central Station Design, Equipment and Systems of Distribution.

Physics 46. Applied Electro Chemistry.

Physics 47. Specific Engineering Problems, Reading and Discussion.

The entire four years course tabulated in a manner similar to those for the degrees of civil and mechanical engineer is as follows:

#### FRESHMAN YEAR

Admission and course same as recently adopted for degrees of civil and mechanical engineer.

#### SOPHOMORE YEAR

Same as for degree of mechanical engineer.

#### JUNIOR YEAR

##### *First Term.*

Mechanics 3  
Mechanical Eng. 12  
Drawing 10  
Physics 5  
Physics 11  
Physics 40

##### *Second Term.*

Mechanics 4  
Mechanical Eng. 13  
Drawing 11  
Physics 9  
Physics 12  
Physics 41

##### *Third Term.*

Mechanics 6  
Mechanical Eng. 14  
Drawing 12  
Physics 10  
Physics 15  
Physics 42

#### SENIOR YEAR

Mechanics 7  
Mathematics 15  
Physics 33  
Physics 36  
Physics 43  
Thesis.

Mechanics 8  
Mathematics 16  
Physics 34  
Physics 44  
Physics 45  
Thesis.

Civil Engineering 11  
Physics 21  
Physics 35  
Physics 46  
Physics 47  
Thesis.

## Chemistry

- 1. Descriptive Chemistry.** Three hours. First Term. Elective for Sophomores.

Non-metals, chemical philosophy. Lectures with experiments, written exercises, individual laboratory work.

Professor BUCHER and one Instructor

- 2. Descriptive Chemistry.** Three hours. Second Term. Elective for Sophomores.

Metals, their metallurgy, chemical compounds, and practical applications; chemical philosophy continued. Methods as in 1.

Professor BUCHER and one Instructor

- 3. Descriptive Chemistry.** Three hours. Third Term. Elective for Sophomores.

Carbon compounds or organic chemistry; chemical philosophy continued. Methods as in 1.

Professor BUCHER and one Instructor

- 4, 5. Qualitative Analysis.** Three hours. First and Second Terms. Elective for Juniors.

Six hours of attendance.

Professor APPLETON and one Instructor

- 6. Quantitative Analysis.** Three hours. Third Term. Elective for Juniors.

Six hours of attendance.

Professor APPLETON and one Instructor

- 7, 8, 9. Quantitative Analysis, advanced.** Six hours. Through the year.

Twelve hours of attendance.

Professor APPLETON and one Instructor

**NOTE:** Courses 7 to 20 are elective for students who have passed in 1 to 6.

- 10, 11, 12. Organic Chemistry.** Six hours. Through the year.

First and Second Terms, eight hours of attendance. Third Term. Twelve hours of attendance. An extended series of exercises in the preparation and quantitative analysis of organic compounds, so selected as fairly to represent different branches of this department.

Professor BUCHER and one Assistant

- 13. Assaying.** Six hours. Third Term.

Twelve hours of attendance.

Professor APPLETON and one Assistant

23. *The Scouring and Dyeing of Wool.* Six hours. Third Term.

Twelve hours of attendance.

Professor APPLETON and one Assistant

*Industrial Chemistry.* One, Two or Three Terms. For graduates. Lectures and laboratory work.

Professor APPLETON

*Physical Chemistry.* Through the year. For graduates. Lectures and laboratory work. Offered in 1901-2. Not offered in 1902-3.

Professor BUCHER

*Organic Chemistry, advanced course.* For graduates. Offered in 1902-3.

Professor BUCHER

*Inorganic Chemistry, advanced course.* For graduates. Offered in 1902-3.

Professor BUCHER

*The Brown University Chemical Society.* The Brown University Chemical Society was organized in 1897 for the purpose of stimulating its members and others in the study of Chemistry. This is accomplished chiefly by conferences, affording opportunities for the discussion of chemical problems, the statement of new discoveries, etc. The society is controlled by undergraduate members of the University. Its meetings are held twice each month, on which occasions papers are read, or lectures delivered, or other appropriate exercises are arranged. The society has made stated visits to chemical works in the vicinity of Providence.

## Zoology. Geology and Anthropology

Professor PACKARD

### Zoology

1. *General Course on Invertebrate Animals.* Three hours. Second Term. Elective for Juniors and Seniors.

3. *Organic Evolution.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

### Geology

1. *Physical Geology.* Three hours. First Term. Elective for Seniors.

5. *Structural and Stratigraphic Geology.* Three hours. First Term. Elective for Seniors.

Six hours of attendance.

6. *Structural and Stratigraphic Geology.* Original research in the field, Elective for Graduates.

2. *Historical Geology, including Paleontology.* Three hours. Second Term. Elective for Seniors, or those who have taken Geology 1, 5 and Zoölogy 1 and 2.

8. *Paleontology.* Three hours. Third Term. Elective for Graduates.

### **Anthropology**

1. *General Course.* Three hours. Third Term. Elective for Seniors and Graduates.

### **Comparative Anatomy**

3, 4, 34. *Comparative Anatomy of Vertebrates.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Dr. WILLIAMS

15, 1, 2. *General Anatomy and Physiology.* Four hours. Through the year. Elective for Undergraduates.

Six hours of attendance. For those who desire a general knowledge of anatomy and physiology.

Professor GORHAM

[16, 17, 30. *Anatomy of the Nervous System.* Three hours. Through the year. Elective for Juniors and Seniors who have passed with credit in 3 and 4.] Not offered in 1901-1902.

Six hours of attendance.

Professor MEAD

NOTE: This course alternates with 31, 32, 33, and will be offered in 1902-03.

18, 19, 20, 21. *Physiology.* Three hours. Third, First, Second and Third Terms. Elective for Juniors and Seniors who have taken Chemistry 2.

Six hours of attendance.

Professor TOWER

9. *Bacteriology.* Three hours. Second Term. Elective for Juniors and Seniors who have passed in 10.

Six hours of attendance.

Professor GORHAM

31, 32, 33. *Comparative Embryology.* Three hours. Through the year. Elective for Juniors and Seniors who have passed with credit in 3, 4 or 16, 17, 30.

Six hours of attendance.

Professor MEAD

25. *Biological Theories and Biological Problems.* Elective for Graduates.

Weekly seminary.

Professor MEAD

27. *Bacteriological Research.* Elective for Graduates.

Laboratory work and seminary.

Professor GORHAM

28. *Advanced Physiology.* Through the year. Elective for Graduates who have sufficient knowledge of chemistry and physiology.

Laboratory work, supplemented by a weekly seminary.

Professor TOWER

29. *Human Anatomy.* Elective for Graduates.

Laboratory instruction. In addition to the course in practical dissection, graduate students will be given an opportunity to attend certain operations at the hospital and to be present at autopsies.

Dr. PERKINS

## Botany

- 1, 2, 3. *General Morphology, Physiology and Ecology.* Three hours. Through the year. Elective for Undergraduates. For Freshmen this is increased to a four hour course.

Six hours of attendance.

Professor BAILEY and Mr. COLLINS

- 4, 5. *Histology and Physiology.* Three hours. First and Second Terms. Elective for students who have passed in 1, 2, 3.

Six hours of attendance.

Mr. COLLINS

14. *Medical Botany.* Three hours. Third Term. Elective for students who have passed in 5.

Five hours of attendance.

Professor BAILEY and Mr. COLLINS

Courses 7, 12, 9, will not be offered in 1901-02.

## Bibliography

Mr. KOOPMAN

1. *Books and Libraries.* Three hours. Third Term. Elective for Seniors and Graduates.

THE LIBRARY OF THE  
MAY 14, 1931





BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

ACADEMIC YEAR

1902-1903



PROVIDENCE, R. I.

REMINGTON PRINTING CO., 63 WASHINGTON STREET

1902



# BROWN UNIVERSITY

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1902-1903

The Academic Year begins Wednesday, September 17, with Chapel Service at 8.40 A. M. At the close of this service the classes will begin their sessions according to the Time Schedule.

### EXAMINATIONS

Examinations for admission to the Freshman Class will be held in Wilson Hall, beginning Friday, September 12, at 8 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 15 and 16. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

### REGISTRATION

The registration of students will begin on *Saturday*, September 13, at 9 A. M., and close on *Tuesday*, September 16, at 6 P. M.

All undergraduate students registering or in any way changing their registration after that time will be charged a fee of three dollars, unless a satisfactory explanation is made to the Dean.

The Committee on Admission to the Freshman Class, the Committee on Admission to Advanced Standing, the

Committee on Courses for Special Students and the Committee on Graduate Students will be in session on these days in the Administration Building.

Candidates for admission to the Freshman Class will report for registration to the Committee on Admission to the Freshman Class. The official notification of admission and other credentials must be presented at the time of registration.

Members of the Sophomore, Junior and Senior classes who have no conditions or failures, will report at the Registrar's office. Those having conditions or failures will report to the Committee on Admission to Advanced Standing.

Candidates for admission to advanced standing will also report to the above committee.

Candidates for admission as special students will report to the Committee on Special Students. All applicants must satisfy the committee and the officers of instruction, by examination or otherwise, of their fitness to take the courses desired. These examinations are held on Friday, Saturday, Monday and Tuesday, September 12, 13, 15, 16.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed. The guarantor must be the parent or guardian, or other responsible person.

In consideration of the admission of.....  
as a student in Brown University, I hereby guarantee and promise to pay  
to said University all dues for rent, tuition, and incidental and other  
expenses properly chargeable to said.....as such student,  
as and when the same shall respectively become payable.

A student paying the full room expenses for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

Copies of the above form are enclosed with this circular and students are requested to have them filled out and returned to the Registrar before September 10. Students whose guarantees have already been filed will not be required to fill out new ones.

### SUGGESTIONS FOR GRADUATE STUDENTS

The attention of students contemplating graduate study at Brown University is called to the graduate rules, recently adopted by the Faculty and enclosed herewith. All such students will find it greatly to their advantage to correspond with the professors of the departments in which they may wish to be enrolled, during the summer, with the object of ascertaining preliminarily to which of the graduate courses offered they may be admitted. Students who are able to offer extra work in accordance with §2 of the rules relating to graduate instruction will do well to secure a certificate for the same from the Registrar and to submit it to the committee, addressed as below. Students who are not graduates of Brown University are advised to send in their diplomas, certificates, etc., together with a marked catalogue or definite statement of the courses pursued in their undergraduate or other work, to the Committee on Graduate Students, care of the Registrar, before September 10th. The committee will then be able to pass on the credentials before the first day of the academic year and to secure for the students prompt registration.

Blanks for preliminary registration may be obtained from the Registrar.

### CHOICE OF ELECTIVES

Students will find enclosed elective lists, which must be marked and returned to the Registrar before the registration cards can be made out. It is urgently requested that these lists be returned, if possible, before September 10th, in order

to facilitate the work of the Registrar, but students wishing counsel before selecting their studies should obtain advice before returning the lists. The student advisers and the officers of instruction may be consulted on Saturday, Monday and Tuesday, September 13, 15, 16, as announced on the bulletin boards. Students should avail themselves of the opportunities thus offered for consultation; it is of the greatest importance to make wise choices of studies for the autumn term, as few changes can be made in the second or third terms.

#### NOTES

Students desiring to elect extra studies must designate them on their elective lists.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructors.

Sophomores who have taken English 1, 2, 3 during their Freshman year will elect twelve or thirteen hours per week instead of nine.

Freshmen, candidates for the degree of Bachelor of Arts or Bachelor of Philosophy, are requested to read carefully the statements regarding the curriculum, and to make out their lists in accordance with the information there given.

Members of the Senior class who are candidates for the degree of Civil Engineer are required to hand the subjects of their theses to Professor Hill on or before October 31, 1902.

Students desiring to rent rooms or to obtain room-mates should apply to the Registrar.

For official notices students should consult the bulletin boards in the north corridor of University Hall or in the Administration Building.

#### CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS

Candidates are required to take certain studies before the completion of the course, as shown in the following tabulation:

*Ancient Language* (either Latin or Greek or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

*Modern Language* (either French or German or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

If only one language is presented for admission the elementary course in the language not presented must be taken.

Languages in which elementary work only is presented for admission must be continued. If elementary work only is presented in one language that language must be continued in the Freshman year. If elementary work only is presented in both languages the continuation of one of these may be postponed to the Sophomore year.

Subject to the above restrictions a student may take the six hours required wholly in French, wholly in German, or three hours in each, choosing any courses for which he is fitted by his previous work.

*Mathematics*. Freshman year. Four hours.

Those who present Solid and Spherical Geometry and Plane Trigonometry must take Mathematics five hours per week during the Freshman year. This includes the courses now numbered Mathematics 4, 5, 6, 7, 9, 10, and 12. Students taking these courses will be enabled to begin work in the sciences requiring Mathematics one year earlier than other students.

*English* (elementary). Freshman year. Three hours.

*English* (argumentation). Junior year. One hour.

*European History*. Three hours.

First and second terms either in the Sophomore or Junior year.

*English Literature*. Three hours.

Sophomore, Junior or Senior year.

*Physical or Natural Science*, a continuous course throughout the year. Three hours.

Freshman, Sophomore or Junior year.

*Political Science, Social Science, and Political Economy*. Three hours.

Sophomore, Junior or Senior year.

*Philosophy*. Three hours.

Sophomore, Junior or Senior year.

## FRESHMAN YEAR

I. *Required Studies.*

Latin 1, 2, 3, or Greek A, B, C or 1, 2, 3. Three hours.

French A, B, C or 1, 2, 3, or } German 1, 2, 3 or 24, 25, 26. } Three hours.

Mathematics 3, 1, 2. Four hours, or

Mathematics 4, 5, 6, 7, 9, 10, 12. Five hours.

English 1, 2, 3. Three hours.

II. *Elective Studies.* One must be chosen in addition to those taken as required studies.

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French A, B, C. For students presenting no French for admission.

French 1, 2, 3. For students presenting elementary French for admission.

French 13, 14, 15. For students presenting advanced French for admission.

German 1, 2, 3. For students presenting no German for admission.

German 24, 25, 26. For students presenting elementary German for admission.

German 34, 35, 36. For students presenting advanced German for admission.

Greek 46, Latin 43, 44 (History of Greek and Roman Life and Institutions). For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission (subject to consent of department).

Botany 1, 2, 3. For all students.

Comparative Anatomy 15, 1, 35. For all students.

## SOPHOMORE YEAR

## I. Required studies which must be completed by the end of the Sophomore year.

That portion of the required work in ancient and modern languages not completed in the Freshman year.

## II. Other required and elective studies sufficient with studies taken under I. to make fifteen hours per week.

### JUNIOR YEAR

- I. Required studies which must be completed by the end of the Junior year.  
 English (argumentation). One hour.  
 The required History and Physical or Natural Science, if not previously taken.
- II. Other required and elective studies sufficient with studies taken under I. to make sixteen hours per week.

### SENIOR YEAR

- I. All required studies not previously taken.
- II. Elective studies sufficient with studies taken under I. to make fifteen hours per week.

## CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Candidates are required to take certain studies, as shown in the following tabulation:

*Modern Language.* An amount sufficient with the work presented for admission to complete the elementary course and a year of advanced work in both French and German. A student who is admitted in both advanced French and advanced German is required to continue only one of these languages for one year, three hours per week, in college.

\**Mathematics.* Freshman year. Four or five hours.

*English (elementary).* Freshman year. Three hours.

*English (advanced).* Junior year. One hour.

*European History.* Three hours.

First and Second Terms either in the Sophomore or Junior year.

*Physical or Natural Science,* a continuous course throughout the year. Three hours.

Freshman, Sophomore or Junior year.

*Philosophy.* Three hours.

Sophomore, Junior or Senior year.

\*Five hours for students presenting Solid or Spherical Geometry and Plane Trigonometry for entrance.

## FRESHMAN YEAR

I. *Required Studies.*

English 1, 2, 3. Three hours.

French A, B, C or 1, 2, 3, or } German 1, 2, 3 or 24, 25, 26. } Three hours.

Mathematics 3, 1, 2. Four hours, or

Mathematics 4, 5, 6, 7, 9, 10, 12. Five hours.

II. *Elective Studies.* Two must be chosen in addition to those taken as required studies.

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French A, B, C. For students presenting no French for admission.

French 1, 2, 3. For students presenting elementary French for admission.

French 13, 14, 15. For students presenting elementary and advanced French for admission.

German 1, 2, 3. For students presenting no German for admission.

German 24, 25, 26. For students presenting elementary German for admission.

German 34, 35, 36. For students presenting elementary and advanced German for admission.

Greek 46, Latin 43, 44 (Greek and Roman Life and Institutions). For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission (subject to consent of department).

Botany 1, 2, 3. For all students.

Anatomy 15, 1, 35. For all students.

Drawing 16, 17, 18. For all students.

## SOPHOMORE YEAR

## I. Required studies which must be completed by the end of the Sophomore year.

That portion of the required work in modern language not completed in the Freshman year.

## II. Other required and elective studies sufficient with those taken under I. to make fifteen hours per week.

## JUNIOR YEAR

- I. Required studies which must be completed by the end of the Junior year.  
English (argumentation). One hour.  
The required History and Physical or Natural Science, if not previously taken.
- II. Other required and elective studies sufficient with those taken under I. to make sixteen hours per week.

## SENIOR YEAR

- I. All required studies not previously taken.
- II. Elective studies sufficient with those taken under I. to make fifteen hours per week.

## ANNOUNCEMENT OF COURSES FOR 1902-1903

The following statements give full information regarding all courses to be offered in 1902-03 and replace the statements made in the last catalogue.

## PHILOSOPHY

## Philosophy and Psychology

**NOTE:** Some one complete course in this department is required of every candidate for the degree of Bachelor of Arts or Bachelor of Philosophy. By a complete course is understood all that is grouped together as a three-hour course under a single name in the accompanying announcements, provided it consists of a year's work. The courses in Education, however, cannot be taken to satisfy this requirement.

19, 27, 43. *Logic.* Three hours. Through the year. Elective for Sophomores and for Juniors who have not taken Philosophy 19.

A study of the aims, methods and limitations of human thinking; a preparation for work in the sciences and in philosophy. First Term, general introduction and formal logic; Second Term, an examination of the principles and methods of the natural sciences; Third Term, a statement of the relations of science to philosophy, giving the philosophic interpretation and criticism of the results of science.

Professor MEIKLEJOHN

2, 3, 4. *Psychology, introductory course.* Three hours. Through the year. Elective for Juniors.

The main facts and laws of mental life; particular attention to their arrangement in a thorough and comprehensive scientific system, also to their philosophical bearing. The course is thus of value not only because of the immense importance of a knowledge of mental law for practical life, but also as a transition from the special sciences to philosophy.

Professor DELABARRE. [This year Mr. HALL]

20, 21, 22. *Psychology, advanced course.* Three hours. Through the year. Elective for Seniors and Graduates.

A seminary for the discussion of important and interesting questions in psychology. First Term, the fundamental principles of psychology; Second Term, abnormal and unusual states of consciousness; Third Term, subject undetermined.

Professor DELABARRE. [This year Dr. CARSON]

29, 30, 31. *Experimental Psychology, introductory laboratory course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have taken or are taking 2, 3, 4.

Six hours of attendance. Description of the main lines and results of experimental research; demonstration of many of them by the instructor or the class; training in the use of apparatus and in careful scientific observation and measurement.

Professor DELABARRE and Mr. HALL. [This year Mr. HALL]

8, 9, 10. *History of Philosophy.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

First Term, Greek philosophy; Second Term, mediæval and early modern philosophy; Third Term, recent and contemporary philosophy. The successive philosophical systems in their dialectical developments and mutual relations; treatment not merely analytic and historical, but synthetic and constructive as well.

Professor EVERETT

5, 23. *Theoretical Ethics.* Three hours. First and Second Terms. Elective for Seniors and Graduates.

Intended to aid in mastering the fundamental problems of life and character. First Term, a discussion of the nature and relations of ethics and an outline of the history of the chief ethical systems; Second Term, a critical study of the fundamental concepts of ethics with the aim of constructing a tenable theory of conduct.

Professor EVERETT

44. *Practical Ethics.* Three hours. Third Term. Elective for Seniors and Graduates.

Intended to apply ethical theory to the life of the individual, the family and the state. Discussion of current problems, personal, industrial and social, from the ethical standpoint.

President FAUNCE

24. *Philosophy of Religion.* Three hours. Third Term. Elective for Seniors and Graduates who have had previous philosophical training.

An investigation of the ultimate grounds of religious belief.

Professor EVERETT

14, 28, 42. *Philosophical Seminary.* Two hours. Through the year. Elective for Graduates.

Lectures, papers and discussions on the more difficult problems of philosophy. Subject for 1902-1903: The Philosophical Systems of Shopenhauer and Von Hartmann.

Professor EVERETT

33, 34, 35. *Kantian and Post-Kantian Philosophy.* Three hours. Through the year. Elective for Seniors who have taken Philosophy 8, 9, 10, and for Graduates.

Kant's Critique of Pure Reason will be studied as the source of German Rationalism. The same line of thought will be traced in the Critique of Practical Reason, and in the works of Fichte, Schelling and Hegel.

Professor MEIKLEJOHN

*Philosophical Club.* A Philosophical Club, consisting of Graduate, Senior and Junior students of Philosophy in all its branches, has been formed for the encouragement of the independent discussion of philosophical questions and for the fostering of a more intelligent interest in the subject. The club meets once a month for the reading of papers and for free discussion. Though the organization is primarily in the hands of the students, the officers of instruction in the philosophical department, as well as other persons interested in philosophy, are usually present to take part in the proceedings.

Courses 39, 40, 41; 25; 17, will not be offered in 1902-03.

### **Education**

Professor JACOBS

1. *History of Educational Theories and Institutions.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Education among the Greeks and the Romans; the rise and constitution of Universities; Erasmus and the Humanists; Comenius and the Realists; Rousseau and the Naturalists; Psychologizing Education; Pestalozzi, Froebel, Herbart.

2. *A Critical Study of Modern Education.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

3. *The Fundamental Principles of Education.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

The meaning and aim of education; the sequence and coördination of studies; the principles of instruction as derived from psychology; apperception; the steps in method; the use of the type in instruction; the training of the will and the principles of moral education.

**NOTE:** Courses 1, 2 and 3 treat of education in its relation to the individual, and to the social and political whole, and hence are of interest to all students, whether they intend to teach or not. At the same time they form a proper and necessary introduction to the professional courses which follow. Those who intend to teach are recommended to elect these courses during the Junior year.

4. *The Psychology of Education.* Three hours. First Term. Elective for Seniors and Graduates.

The principles of psychology applied to method in education and instruction.

5. *The Hygiene of Education.* Three hours. Second Term. Elective for Seniors and Graduates.

The hygiene of growth. Play and fatigue. Sight and hearing. School diseases. School architecture. Warming, ventilating and lighting. Sanitation. School furniture. School programmes.

6. *Practical Introduction to Teaching.* Three hours. Third Term. Elective for Seniors and Graduates.

Organization of school systems. Management and discipline of classes. Observation of good teaching. Practical applications in method.

**NOTE: Teachers' Certificates.** The above courses, 1-6, cover the requirements in professional studies for certificates of the First Grade in all states except where practice teaching or experience is demanded. In Rhode Island *the holding of a certificate is required of all teachers* in schools supported in whole or in part by public money. Certificates of the First Grade are granted without examination to those who have completed the above courses and hold a college degree.

**NOTE:** Those who have completed Courses 1-6 and hold a college degree are eligible to appointment in the Primary and Grammar Training Schools of Providence, under especially favorable conditions.

7. *A Study of Educational Values.* Two hours. First Term. Seminary course. Required of student-teachers. Elective for Graduates and experienced teachers.

A careful consideration of the importance and meaning of the chief subjects taught in Secondary Schools.

8. *Method as Applied to Typical Secondary School Studies.* Two hours. Second Term. Seminary course. Required and elective as in 7.

Methods of teaching English, Latin, Modern Languages, Mathematics, History, Science.

9. *Organization, Equipment and Management of Secondary Schools.* Two hours. Third Term. Required and elective as in 7.

A seminary course.

10, 11, 12. *Problems in Practical Teaching.* Practice teaching. Control and conduct of classes, plans for single lessons, and for "method-wholes," observation of the work of experienced teachers, reports, private conferences, theses upon practical questions of educational work.

NOTE: Opportunity for practice teaching in the High Schools of the city is given to capable graduate students, and in the Grammar Schools to a limited number of Seniors, preparing to teach in the Grades or to fill places as principals or superintendents.

The Seminary in Education, conducted by Professor Jacobs, and limited to graduate students and experienced teachers, holds meetings for the discussion of contemporary problems.

NOTE: Student-Teachers. By special arrangement with the School Committee of the City of Providence, student-teachers are appointed to places in the Providence High Schools. Appointments are made from members of the Senior class who have pursued the undergraduate courses in Education. These student-teachers are of two types. Those of the first type—of whom there are at least six (three of each sex)—under the guidance and direction of experienced teachers, have the control and conduct of classes. The time required each day is somewhat more than half the usual school session. They receive from the city \$400 for their services for the year. Those of the second type are occupied in a similar way for from three to five hours a week. They receive no remuneration from the city. An unusual opportunity is thus afforded student-teachers to gain a thorough knowledge of the theory of education and at the same time practical experience in the art of teaching. In making appointments to places as teachers of the lowest grade in the

Providence High School, preference is given to those who have successfully accomplished the course as student-teachers. In this respect student-teachers of the second type have the same status before the committee that makes appointments as those of the first type.

## HISTORY

### *European History*

Professor MUNRO

1. *General Mediæval History of Europe.* Three hours. First Term. Required of Juniors, candidates for the degree of Bachelor of Arts or Bachelor of Philosophy.

2. *General Modern History of Europe.* Three hours. Second Term. Required of Juniors, candidates for the degree of Bachelor of Arts or Bachelor of Philosophy.

NOTE: In Courses 1 and 2 a text-book is used, mainly as a syllabus. Daily lectures supplement this work. Reports on assigned topics are required from all students. The other courses in European History are lecture courses.

18. *Spanish History.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

3. *The Period of the Reformation.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

16. *The French Revolution.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

32. *European History since 1815.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

The Seminary in European History, conducted by Professor Munro, and limited to a small number of advanced students, holds meetings devoted to discussion of topics previously assigned.

Courses 15, 11 will not be offered in 1902-03.

### *English and American History*

Professor MACDONALD

[19, 20, 21. *English Constitutional and Political History to 1689.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1902-03.

22, 23, 24. *English Constitutional and Political History since 1689.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Courses 22, 23 and 24 give special attention to the growth of cabinet government, the colonial system, foreign relations, and parliamentary and economic reform.

25, 26, 27. *American History to 1787.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Special stress is laid in these courses on American colonial history as illustrative of the colonial policies of European states, and on such topics as the development of colonial and local forms of government, the intercolonial wars, the Revolution, colonial slavery, etc.

[28, 29, 30. *Constitutional and Political History of the United States since 1787.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1902-03.

12. *Research Course in English History.* One hour. Through the year. Elective for Graduates.

The subject for 1902-03 is the reign of James II and the English Revolution.

14. *Research Course in American History.* One hour. Through the year. Elective for Graduates and qualified Seniors.

The subject for 1902-03 is the administrations of Andrew Jackson.

Courses 12 and 14 count each as a three-hour course throughout the year.

31. *Principles of Historical Criticism and Research*, with special reference to Historical Bibliography. One hour. Through the year. Elective for Graduates.

The subject-matter of the course will vary somewhat from year to year. In 1902-03 particular attention will be paid to the bibliography of later English history. A reading knowledge of French and German is essential.

Courses 4, 5, 6, 7, 8, 9, 10, 13, 17 will not be offered.

### SOCIAL AND POLITICAL SCIENCE

NOTE: *The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

*Courses offered in 1902-03, but not to be offered in 1903-04.*

Political Science 3. International Law	Political Science 7. Foreign Diplomacy	Political Science 11. American Diplomacy
Political Science 4. Government of the United States	Political Science 16. Constitutional Law	Political Science 2. Important Euro- pean Governments
Social Science 10. Social Institutions	Social Science 2. Social Problems	Social Science 3. American Social Problems

*Courses not offered in 1902-03, but to be offered in 1903-04.*

Political Science 13. National Administration	Political Science 14. Local and Colonial Administration	Political Science 15. Municipal Government
Political Science 1. Problems of the State	Political Science 17. American Political Problems	Political Science 18. Political Parties
Social Science 5. History of Social Ideas	Social Science 13. History of Socialism	Social Science 4. The Social Ideal
	Political Science 6. Principles of Roman Law	Political Science 19. Spanish - American Governments

*Courses for Graduates only.*

Social Science 7	Social Science 8	Social Science 9
Political Science 2	Political Science 9	Political Science 10

### Social Science

12. *Elementary Course.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

Professor WILSON

2, 3. *Social Problems and Conditions.* Three hours. Second and Third Terms.

Professor WILSON

7, 8, 9. *Current Social Theory and Practice.* One hour. Through the year. Elective for Graduates.

Professors WILSON and DEALEY

10. *Social Institutions.* Three hours. First Term.

Development, Forms, Importance, as shown in the Family, Church, School, etc.

Professor DEALEY

22, 23, 24. *Investigation of Special Subjects.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in 12.

NOTE: For description of the purpose of this course see  
Political Economy 22, 23, 24.

Courses 1, 4, 5, 11, 13, 14 will not be offered in 1902-03.

### Political Science

12. *Elementary.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12.

Professor DEALEY

2. *Comparative Study of Constitutions.* Three hours. Third Term.  
Professor DEALEY
3. *International Law and Relations.* Three hours. First Term.  
Professor WILSON
4. *United States Constitutions.* Three hours. First Term.  
Professor DEALEY
5. *Development of Political Theory.* Three hours. Third Term.  
Professor DEALEY
7. *Diplomacy.* Three hours. Second Term. Elective for students  
who have completed Political Science 3.  
Art and practice of international negotiation.  
Professor WILSON
- 8, 9, 10. *Current Political Theory and Practice.* One hour. Through  
the year. Elective for Graduates.  
Professors WILSON and DEALEY
11. *Diplomacy.* Three hours. Third Term. Elective for students  
who have completed Political Science 3.  
American development and problems.  
Professor WILSON
16. *Constitutional Law.* Three hours. Second Term.  
Principles and development, with special reference to Constitu-  
tion of the United States.  
Professor DEALEY
- 22, 23, 24. *Investigation of Special Subjects.* Three hours. Through  
the year. Elective for Juniors, Seniors and Graduates who have passed  
in 12.  
NOTE: For description of the purpose of this course see Polit-  
ical Economy 22, 23, 24.  
Courses 1, 6, 13, 14, 15; 17, 18, 19 will not be offered in 1902-03.

### **Elementary Law**

Mr. BARROWS

1. *Persons and Personal Property.* Three hours. First Term. Elective  
for Juniors and Seniors.

NOTE: Groups 1, 2, 3 and 4, 7, 8 are given in alternate years.  
In 1902-3 the courses given will be 1, 2, 3. Courses 4, 7, 8 will be  
offered in 1903-04. Courses 5, 6, 9 will for the present be omitted.  
These groups should be taken consecutively, beginning in the  
Junior year. While the primary purpose of these courses is to  
cultivate a legal mind, yet they prepare thorough students to  
enter most law schools with advanced standing and possibly to  
shorten their law course by one year; they also give a good  
foundation to the student who expects to prepare for the bar in a  
law office.

2. *Real Property.* Three hours. Second Term. Elective for Juniors and Seniors.

3. *Contracts.* Three hours. Third Term. Elective for Juniors and Seniors.

Courses 4, 7, 8, 9, 5, 6 will not be offered in 1902-03.

## POLITICAL ECONOMY

12. *Political Economy, elementary.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12 and Political Science 12.

Professor GARDNER

*NOTE: The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

*Courses 9, 10, 11, 15, 4 and 17 will probably not be given in 1903-1904. Students intending to take only one course in this department are advised to take 1, 2, 3.*

1, 2, 3. *General Economics.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in 12.

This is a continuous course, new students not being admitted in the Second and Third Terms.

The First Term is devoted to a discussion of the development and results of the more important elements in the existing form of industrial organization. The following are among the topics treated: The independence and responsibility of the individual, private property, freedom in the choice of industry, freedom of exchange and contract, competition, speculation, capitalistic control of industry, the tendency to industrial combination, money, and credit. The Second Term is devoted to a discussion of the principles governing the distribution of wealth under the existing form of economic organization. The Third Term is devoted to a brief discussion of some of the more important economic problems, such as the tariff, the regulation of the conditions of employment, particularly regulations affecting hours of labor and the employment of women and children, trades unions, arbitration and conciliation, coöperation and profit sharing, socialism, the single tax, the railway problem, governmental ownership and management of monopolies, and the regulation of industrial combination.

Professor GARDNER (First and Second Terms)

Dr. WILLET (Third Term)

9. *Public Finance.* Three hours. First Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

This course comprises a brief review of the development and significance of modern methods of raising and expending the revenues of government, a discussion of the principles of taxation and public indebtedness, and of the financial aspects of the ownership and management of industries by government, and a comparison between the financial systems of leading modern nations.

Professor GARDNER

10. *Public Finance.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

The financial history of the United States.

Professor GARDNER

11. *Public Finance.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Local finance with special reference to the financial systems of States and municipalities in the United States.

Professor GARDNER

**NOTE:** Courses 9, 10 and 11 constitute a continuous course but they may be taken separately.

15. *The Labor Movement.* Three hours. First Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

This course has special reference to trade unions and labor problems in the United States.

Dr. WILLETT

4. *Socialism.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

This course comprises a brief review of the historically important socialistic schemes but is devoted mainly to the study of the modern scientific socialism of Karl Marx, and of the socialistic movements which have resulted from it.

Dr. WILLETT

17. *The Tariff.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

This course includes (1) a discussion of the arguments for free trade and protection considered in relation to the principles of international trade; (2) an historical study of tariff legislation in the United States.

Dr. WILLETT

19. *Industrial History.* Three hours. First Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

This course is devoted chiefly to the industrial history of England and the evolution of modern forms of industrial organization.

Professor GARDNER

20. *Industrial History of the United States.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Professor GARDNER

21. *Existing Industrial Conditions in the United States.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Professor GARDNER

NOTE: 19, 20 and 21 form a continuous course but may be taken separately.

22, 23, 24. *Investigation of Special Subjects.* Three hours. First, Second and Third Terms. Elective for Juniors, Seniors and Graduates who have passed in 12.

These courses do not constitute a single course and may be taken separately. They are intended to train the student in methods of gathering and handling data in the study of economic or social or political problems and conditions, and will be conducted in a manner similar to that followed in laboratory courses. Six hours of attendance will be required and each student will be assigned a subject for investigation to be worked up under the direction and supervision of the instructor. The number of students who can be accommodated in these courses is limited and preference will be given to students who are taking other courses in economics. Students desiring to take these courses are requested on or before the opening day of the term to confer with Professor Gardner or Dr. Willett at their office in the basement of Sayles Hall.

Professor GARDNER and Dr. WILLETT

## THE FINE ARTS

Professor POLAND

The authorities of Brown University, coöperating with the authorities of the Rhode Island School of Design, have approved certain practical courses in art to be given by teachers of the Rhode Island School of Design, to supplement the historical and theoretical work done at Brown University. These courses in their general character may be regarded as what are called "laboratory courses" in other departments of the college. Their purpose is to train students to a better appreciation of the works of art studied in the historical and theoretical courses. It is not the purpose of these courses to prepare the students who take them for the practice of art, although the work done in them will be thoroughly scientific and helpful to any persons who expect to devote themselves to art as a profession. (See Fine Arts 14, 15, 16 and Drawing 2, 3, 4, 21, 22.) Courses 2, 3, 4, 21, 22 are given under the direction of

the department of Drawing but the department of Fine Arts calls attention to these courses as especially important to students of the history of art. Courses 2, 3, 4, faithfully pursued, cannot fail to be practically useful to a student in any department in which graphic illustration has any place. Further it may be urged that no student ought to neglect to gain some practical understanding and control of one of the most venerable and universal means of expression used by the human race. As compared with drawing, alphabetic writing is limited and modern.

1. *Ancient Art or Classical Archaeology.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

A general course in the history of ancient art, chiefly Greek. Text-book (Tarbell's History of Greek Art); lectures illustrated by casts, slides, photographs and engravings; collateral reading.

**NOTE:** Courses 1, 4 and 6 may be taken independently, but students are advised to elect all three in the above order. Students are strongly advised to take 1, if possible, before any other course in the History of Art.

**NOTE:** Students electing courses in this department must have their text-books at the opening of the term. Failure to secure the books will not exempt students from responsibility for the lectures from the beginning.

4. *Roman, Early Christian and Mediæval Art.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Study of Roman, Romanesque and Gothic art, with some notice of Byzantine, Arabian and Oriental art.

6. *Art of the Renaissance.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

The fifteenth and sixteenth centuries. The effect on art of the dominant motives of the epoch, the development of art in the different countries of Europe, the great masters and their most significant works. Text-book, lectures, lantern views.

**NOTE:** Courses 6, 7, 9 and 8 form a consecutive outline.

- 14, 15, 16. *Practical Work in Art supplementary to the History of Art.* Three hours. Through the year. Elective for students who are taking or who have passed in History of Art 1, 4, 6, and who have also passed in Drawing 2, 3, 4. (The requirement of passing in Drawing 2, 3, 4 will be waived during the academic year 1902-1903).

Six hours of drawing or other practical work, to illustrate the principles of delineation, color and chiaroscuro, and the principles of design in architecture, sculpture and painting, as exemplified in the historic forms of art.

This course will be given at the Rhode Island School of Design.

7, 9. *Modern Art.* Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates who have passed in 6.

First Term, the seventeenth and eighteenth centuries; Second Term, the nineteenth century. Text-book for Course 7, Poland's Notes and Questions on the History of Art in the Seventeenth and Eighteenth Centuries.

8. *Theory and Criticism of the Fine Arts.* Three hours. Third Term. Elective for students who have passed in any course in the History of Art.

A study of the more important facts and laws of artistic production.

10. *Seminary in Classical Architecture.* Elective for Graduates.

Critical study; Vitruvius read in the original Latin; discussion of the principles followed by the Greek and Roman architects; modern archaeological discoveries used to illustrate and correct Vitruvius; the influence of Vitruvius on the Italian Renaissance and on modern architecture will be noticed.

3. *Seminary Study of the Acropolis of Athens.* Elective for Graduates.

Based on a critical reading in the original Greek of Pausanias I, 22-28. Text-book, *Pausaniæ Descriptio Arcis Athenarum in usum scholarum edidit Otto Jahn: editio altera recognita ab Adolpho Michaelis.*

Bonn, 1880. The recent discoveries on the acropolis will be noticed in addition to what appears in the elaborate notes of the text-books.

NOTE: Course 10 will occupy the most of the first two terms. Course 3 will be given chiefly if not wholly in the Third Term. Graduates who intend to elect these courses are requested to notify Professor Poland (at Grasmere, N. H.) at the earliest possible moment, as the text-books must be ordered from Europe some time in advance. The courses will probably not be given unless at least three students elect them.

## Music

Professor ASHTON

1, 2, 3. *Harmony.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

First Term, the construction and connection of chords, the writing of exercises; Second Term, modulation, non-harmonic notes, harmonization of melodies; Third Term, analysis of harmony in compositions by the best writers, the study of melody, the writing of compositions.

NOTE: Courses 1 to 9 inclusive are sequential and must be taken in order.

4, 5, 6. *Counterpoint.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

Study of the rules of counterpoint; constant practice in contrapuntal writing; analysis of works by the best contrapuntal writers.

15. *Music and Musicians of the Nineteenth Century.* Three hours. Third Term. Elective for Juniors and Seniors who have not passed in or who are not taking 10, 11, 12.

A general course to acquaint the student with the life, works, and style of Beethoven, Schubert, Schumann, Mendelssohn, Wagner and other famous composers of the nineteenth century.

13. *Sacred Music.* Three hours. Third Term. Elective for Juniors and Seniors.

The history of sacred music and a study of music in its application to religious worship. Designed for those who are to be intrusted with the direction of church music.

20, 21, 22. *The Symphony.* Three hours. Through the year. Elective for Graduates.

Study of the evolution of the symphony orchestra and of the works of symphonists from Haydn to Brahms and Tschaikowsky.

## INDO-EUROPEAN PHILOLOGY

Professor ALLINSON

1, 2. *General Introduction to the Study of Language.* Three hours. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Outline of the history of language. The Indo-European family. Adapted for students of ancient or modern languages.

[4, 5, 6. *Sanskrit, elementary.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1902-03 except by special request.

Whitney's Grammar, Lanman's Reader.

8. *Seminary in Comparative Philology.* One two-hour session weekly. First Term. Elective for Graduates and qualified Seniors.

Intended for advanced students in Latin and Greek. See Greek 34. Courses 10, 11, 12 will not be offered.

## GREEK LITERATURE AND HISTORY

A, B, C. *Elementary.* Three hours. Through the year.

For the benefit of those who have been prevented from obtaining Greek before entering college. Aims to cover with mature students as much as possible of the entrance requirements in Greek. It is hoped that earnest and mature students will be able to make such progress, during the academic year, in reading

Xenophon that they will be able, by private study during the following long vacation, to complete four books of the *Anabasis* before the beginning of the next academic year. They might then take up with the Freshman class the reading of the regular prose Greek, and, by additional study, complete before the following spring term, the entrance requirements in Homer, and thus be enabled to continue with the Freshman class in Homer also.

1. *Lysias*. Three hours. First Term. Elective for students who present elementary and advanced Greek for admission or who have taken Greek A, B, C.

*Lysias*, select orations and practice in sight reading.

Professors MANATT and ALLINSON

2. *Plato*. Three hours. Second Term. Elective for students who present elementary and advanced Greek for admission or who have taken Greek A, B, C.

*Plato's Apology* and *Crito*, with other selections for sight reading.

Professors MANATT and ALLINSON

3. *Homer*. Three hours. Third Term. Elective for students who present elementary and advanced Greek for admission or who have taken Greek A, B, C.

The *Odyssey*, four books, rapid reading of other books; lectures on the life of the Heroic Age as revealed in the poems and illustrated by recent archæological research.

Professors MANATT and ALLINSON

46. *Greek Life*. Three hours. First Term. Elective for Freshmen and Sophomores.

A study of the private and public life of the Greeks in the light of their literature and monuments. Syllabus, lectures and prescribed reading, with frequent reports, written tests, and a thesis. No knowledge of Greek or Latin is required. The course is continued in the Second and Third Terms as Latin 43, 44 (see page 28). The three terms constitute the course called History of Greek and Roman Life and Institutions.

Professor MANATT

4. *Herodotus*. Three hours. First Term. Elective for Sophomores.

Books VI and VII, with collateral reading of Æschylus' *Persians*, and Plutarch's *Themistocles* and *Aristides* in English.

Professor MANATT

5. *Lucian*. Three hours. Second Term. Elective for Sophomores. Selections from Lucian.

Professor ALLINSON

6. *Dramatic Poets.* Three hours. Third Term. Elective for Sophomores.

Lectures on the Greek Drama; *Æschylus*, *Prometheus*; *Aristophanes*, *Clouds*.

Professor ALLINSON

16. *Plato and Æschylus.* Three hours. First Term. Elective for Juniors and Seniors.

*Republic*, book x; selections from books I-IX.

*Agamemnon*, with readings from other plays.

Professor ALLINSON

17. *Hesiod and the Homeric Hymns.* Three hours. Second Term. Elective for Juniors and Seniors.

Professor MANATT

18. *Theocritus and the Lyric Fragments.* Three hours. Third Term. Elective for Juniors and Seniors.

Professor MANATT

23, 24. *Modern Greek.* One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Professor MANATT

43. *Greek Composition, advanced.* One hour. Second Term. Elective for Sophomores, Juniors and Seniors. [This course may be continued in the Third Term.]

Practice in prepared and in extemporaneous writing of Greek. For those who intend to teach or otherwise to specialize in the classics.

Professor ALLINSON

34, 35, 36. *Greek Seminary.* One two-hour session weekly. Through the year. Elective for Graduates and approved Seniors.

First Term (b) Greek and Latin Grammar. See Philology 8.

Second Term (a) Pindar's Olympian and Pythian Odes.

Third Term (a) Minor Dialogues of Plato, or (b) Bacchylides.

Professor MANATT (a) and Professor ALLINSON (b)

41, 42. *Homer and Mycenæan Archaeology.* Two hours. First and Second Terms. Elective for Graduates and approved Seniors.

Professor MANATT

## ROMAN LITERATURE AND HISTORY

1. *Livy.* Three hours. First Term. Elective for students who present elementary and advanced Latin for admission.

Professor GREENE and Mr. PAINE

NOTE: While grammatical study and literary criticism receive attention in this as in the other courses of the Freshman year, the special aim is to enable the student to acquire facility in reading and to instruct him in the use of the Latin texts as a means of acquiring a knowledge of Roman history.

2. *Cicero's Letters.* Three hours. Second Term. Elective for students who present elementary and advanced Latin for admission.

Professor GREENE and Mr. PAINÉ

3. *Tacitus' Germania and Agricola.* Three hours. Third Term. Elective for students who present elementary and advanced Latin for admission.

Professor GREENE and Mr. PAINÉ

43, 34. *Roman Life.* Three hours. Second and Third Terms. Elective for Freshmen and Sophomores.

The private and public life of the Romans based on the monuments and literature. Intended to give a comprehensive view of the general civilization of Rome. Lectures supplemented by reading and reports. No knowledge of Greek or Latin is required.

Professor GREENE

NOTE: This course is a continuation of Greek 46. The three terms together constitute the course called History of Greek and Roman Life and Institutions.

4. *Horace's Odes and Epodes.* First Term. Elective for Sophomores.

Professor GREENE

NOTE: In this as in the other Sophomore courses, the literary side of the study is made prominent. A part of the time is occupied with a critical study of the poems, while a part is devoted to rapid reading with a view to comprehending the spirit of the authors. Lectures are given by the instructor, and literary topics are assigned to the class for special study.

5. *Catullus, Tibullus and Propertius.* Three hours. Second Term. Elective for Sophomores.

Professor GREENE

6. *Satires of Horace and Juvenal.* Three hours. Third Term. Elective for Sophomores.

Professor HARKNESS [This year Mr. PAINÉ]

11. *Prose of the Republican Period.* Three hours. First Term. Elective for Juniors and Seniors.

Development of oratory; reading from specimens of Early Latin, from Cicero's Brutus, and from Quintilian.

Professor HARKNESS [This year Professor GREENE]

NOTE: The advanced courses open to Juniors and Seniors relate to the development and history of Roman literature. Poetry and prose are discussed in alternate years. The aim of these courses is to give a connected and comprehensive view of the entire range of Roman Literature. Lectures are given on the lives and writings of the authors, and characteristic selections are read. Topics in literary history and criticism are assigned to members of the class for special study and investigation.

12. *Prose of the Augustan Age.* Three hours. Second Term.  
Elective for Juniors and Seniors.

Development of historical writing ; readings from the historians.  
Professor HARKNESS [This year Professor GREENE]

13. *Prose of the Silver Age.* Three hours. Third Term. Elective for Juniors and Seniors.

Roman philosophers ; readings from Seneca and other authors of this period.

Professor HARKNESS [This year Professor GREENE]

37, 38, 39. *Latin Composition.* One hour. Through the year.  
Elective for Sophomores, Juniors and Seniors.

Professor GREENE [This year Mr. PAINÉ]

43, 44, 45. *Cicero, De Natura Deorum.* One hour. Through the year. Elective for Juniors, Seniors and Graduates.

Mr. PAINÉ

40, 41, 42. *Seminary in Latin.* Two hours. Through the year.  
Elective for Graduates.

First Term, Roman Elegy ; Second Term, Lucan ; Third Term, Roman Provincial Administration.

Professor GREENE

Courses 7, 8, 9; 10, 14, 15; 16, 17, 18; 19, 20, 21; 22, 23, 24 will not be offered.

Advanced students in Latin should note Philology 8, and Greek 34.

### ENGLISH LITERATURE AND LANGUAGE

NOTE: No course, except 11, can be begun in the Second or the Third Term without special permission from the instructor.

1, 2, 3. *Rhetoric and Composition.* Three hours. Through the year.  
Required of all Freshmen, and of all Sophomores who have not taken the subject in the Freshman year.

Professors DAMON, BENEDICT and HUNTINGTON, Messrs. LATHAM,  
CHASE, HERSEY, GUILD and BOARDMAN

4, 5, 6. *Argumentative Composition.* One hour. Through the year.  
Required of all Juniors. Pre-requisite, 2, 3.

The class will meet twice a week at first, but the total number of sessions will not exceed the usual number in a one-hour course.  
Professors DAMON, BENEDICT and HUNTINGTON, Messrs. LATHAM,  
CHASE and HERSEY

7, 8, 9. *English Composition, advanced.* Three hours. Through the year. Elective for a limited number of Undergraduates who have passed in 1, 2, 3.

Professor DAMON

11, 12. *Debate.* Three hours. Second and Third Terms. Elective for a limited number of Juniors and Seniors who have passed in at least one term of argumentation.

Each student is expected to take part, as a principal disputant, in three debates each term. The class will meet once or twice a week according to the number of members.

Juniors may substitute 11 for 5, 6.

Professor HUNTINGTON with the co-operation of the Professors of Political Economy, Social and Political Science, History and Public Speaking.

13, 14, 15. *Public Speaking.* Three hours. Through the year. Elective for all Undergraduates.

Professor CROSBY

16, 17, 18. *English Literature, introductory.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Professor BRONSON

19, 20, 21. *Old English.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

The essentials of Anglo-Saxon grammar. Prose selections.  
Béowulf.

Professor DAMON

22, 23, 24. *Middle English.* Three hours. Through the year. Elective for students who have passed in 19, 20, 21.

Professor POTTER

25, 26, 27. *Chaucer.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor POTTER

28, 29, 30. *Historical Grammar of the English Language.* Three hours. Through the year. Elective for students who have passed in 19, 20, 21 or 25, 26, 27.

Professor POTTER

31, 32, 33. *English Literature, exclusive of the Drama, from 1400 to 1600.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not to be offered in 1903-04.

Mediæval literary forms and the transition to the modern period: romance, ballad, allegory, satire, miracle-play, the beginnings of prose, Elizabethan novels and lyrics.

Professor BENEDICT

40, 41, 42. *Shakspere.* Three hours. Through the year. Elective for Juniors and Seniors. Not to be offered in 1903-04.

Work chiefly linguistic and interpretative, with some attention to the literary history and the sources of the plays read.

Professor POTTER

46, 47, 48. *English Literature from 1660 to 1798.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not to be offered in 1903-04.

Reading and study of the greater essayists, novelists, and poets, with some attention to lesser writers. Lectures on the life of the times, the Restoration Drama, the development of the Essay and the Novel, and the beginnings of Romanticism. Special papers on selected topics.

Professor BRONSON

49, 50, 51. *English Literature from 1798 to 1832.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not to be offered in 1903-04.

Reading and study of Wordsworth, Coleridge, Byron, Shelley, Keats, Hazlitt, Lamb, DeQuincey, Jane Austen, and Scott, with some attention to lesser authors.

Professor POTTER

55, 56, 57. *English Literature from 1832, the Poets.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not to be offered in 1903-04.

First and Second Terms, Tennyson and Browning; Third Term, Mrs. Browning, Arnold, Swinburne, Rossetti, Morris, and others.

Professor CROSBY

61, 62, 63. *American Literature.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.

Professor SEARS

64, 65, 66. *Seminary in English Literature.* Three hours. Through the year. Elective for Graduates, and for Seniors who have passed with credit in two or more courses in English literature. Number of members limited to twelve.

Subject in 1902-03: Methods of literary study, with investigation of various special problems.

Professor BRONSON

Courses 34, 35, 36; 58, 59, 60; 67, 68, 69 will not be offered in 1902-03.

## GERMANIC LANGUAGES AND LITERATURES

### **German**

1, 2, 3. *Introductory Course.* Three hours. Through the year. Required of all students not presenting German for admission.

Reading at the outset; grammar; composition; dictation; sight reading. Selections in prose and poetry from standard authors.

Mr. THOMPSON

24, 25, 26. *Intermediate Course.* Three hours. Through the year. Required of all Freshmen presenting elementary German for admission.

Selected works of classical and modern authors. Study of syntax based upon the text.

Mr. THOMPSON

4, 6, 8. *The Drama of the Classic Period.* Three hours. Through the year. Elective for students who have passed in 1, 2, 3.

Lessing, Schiller, Goethe. Two dramas of each author. Recommended to the general student of German. An introduction to the best literature, the linguistic side of the study being also kept in sight.

Professors CROWELL and JONAS

5, 7, 9. *Modern Prose.* Three hours. Through the year. Elective for students who have passed in 1, 2, 3.

Varies in details from year to year; presents representative pieces of the best nineteenth century authors, in history, biography, legend and fiction. Valuable for students using German sources in other subjects. Sight reading a prominent feature. Parallel to 4, 6, 8.

Professor JONAS

46, 47, 48. *German Masterpieces I.* Three hours. Through the year. Elective for students who have passed in 8.

Goethe's *Faust*, Parts I. and II., with a glance at recent dramas of kindred interest. With 49, 50, 51 presents the productions of the great German writers which deal with important psychological and moral problems. Offered in alternate years.

To be omitted in 1903-04.

Professor CROWELL

16, 17, 18. *German Literature.* Three hours. Through the year. Elective for students who have passed in 48.

The principal literary movements in Germany from the earliest times to the present. Lectures, reports on assigned topics, extended reading. Subject for 1902-03: A general view of German Literature from the fourth to the nineteenth century.

Professor CROWELL

40, 41, 42. *Composition.* One hour. Through the year. Elective only for students pursuing the regular courses of the second or third year in German, and for those who have passed in 48.

Most appropriately taken in connection with courses 4, 6, 8 or 5, 7, 9. Hours for conversation are appointed.

Professors CROWELL and JONAS

43, 44, 45. *Advanced Composition.* One hour. Through the year. Elective for students who have passed in 42 and who are pursuing or have completed third year courses.

Original themes.

Professor JONAS

52, 53, 54. *German Poetry.* Three hours. Through the year. Elective for students who have passed in 48. To be omitted in 1903-04.

Comparative study of representative epics (first term), lyrics (second term), ballads (third term).

Professor JONAS

61, 62, 63. *Research in German Literature.* Three hours. Through the year. Elective for students who have passed in 18 or 48.

Six hours of attendance in the Seminary Library.

Investigation of problems specially assigned. Themes and reports.

31, 32, 33. *Germanic Philology.* One hour through the year. Elective for graduates. Offered in alternate years. To be omitted in 1903-04.

Discussion based on *Paul's Grundriss der Germanischen Philologie.*

Professor CROWELL

### Gothic

1, 2, 3. Two hours. Through the year. Elective for Graduates. Offered in alternate years. To be omitted in 1903-04.

Discussion of East Germanic languages and of Gothic Etymology.

Reading of extracts in Streitberg's *Gotisches Elementarbuch*, or Braune's *Gotische Grammatik*. Students electing Gothic should also take Germanic Philology.

Professor CROWELL

Courses 49, 50, 51 (German Masterpieces II.); 10, 11, 12 (Middle High German); 19, 20, 21 (Old High German); 28, 29, 30 (German Mythology); Old Norse 1, 2, 3 will not be offered in 1902-03.

## ROMANCE LANGUAGES AND LITERATURES

### French

A, B, C. *Elementary French.* Three hours. Through the year. Required of all students not presenting French for admission.

Grammar, composition, dictation, translation of selections from modern authors into idiomatic English. The equivalent of the French required for admission.

Mr. MORSE

1, 2, 3. *Language.* Three hours. Through the year. Required of all students presenting elementary French for admission.

A thorough study of French syntax, translation of modern authors, written and oral retranslation into French of exercises based upon the texts read, dictation. Intended to give students a large working vocabulary.

Professor JOHNSON, and Mr. MORSE

13, 14, 15. *Practice in Writing and Speaking.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3 or an equivalent.

Intended more especially for those preparing to teach. A large amount of set and free composition, abstracts (in French) of assigned reading, dictation, conversation, oral translation into French of an English novel, abstracts of French read in class by the instructor.

Professor JOHNSON

37, 38, 39. *The French Drama.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed creditably in French 1, 2, 3.

From Corneille to Rostand, with special study of its classical and romantic sources and influences.

Professor LANGDON

Courses 4, 5, 6 will not be offered in 1902-03.

### **Italian**

1, 2, 3. *Modern Italian.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Mr. MORSE

### **Comparative Literature**

1, 2, 3. *Dante in English.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

A study of the whole of the *Divina Commedia* in English in the light of modern thought, and in connection with the great world-poems, *Job*, the *Iliad-Odyssey*, the *Aeneid*, *Hamlet*, *Paradise Lost*, *Faust* and *The Ring and the Book*. An introduction to a study of comparative literature by means of the best available translations. A survey of the greatest monuments of literature from the point of view of the most universal and central of all. Intended especially, though not exclusively, for students who, not having time for the study of many literatures in the original, yet desire acquaintance with what is best in the poetic culture of the world.

Professor LANGDON

### Spanish

1, 2, 3. *Modern Spanish.* Three hours. Through the year. Elective for Juniors, and for Sophomores not electing more than one other modern foreign language.

Conversation, composition, writing from dictation, and rapid reading.

Professor JOHNSON

4, 5, 6. *Language and Literature.* Three hours. Through the year. Elective for those who have passed with credit in 1, 2, 3.

First Term, translation of Valdés' *José*, written and oral retranslation into Spanish of exercises based on the text, dictation of colloquial Spanish, conversation and composition (unprepared) based upon the dictation. Second Term, Galdos' *Doña Perfecta*, weekly reports (in Spanish) of outside reading. Third Term, Gil y Zárate's *Guzmán el Bueno*, Echegaray's *O Locura ó Sanidad*, selections from *Don Quijote*, abstracts of Spanish read in class by the instructor.

Professor JOHNSON

## BIBLICAL LITERATURE AND HISTORY

### Hebrew

1, 2, 3. *Elementary Hebrew.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor FOWLER and Mr. BROWN

16, 17, 18. *Historical Hebrew.* Three hours. Through the year. Elective for students who have completed Hebrew 1, 2, 3.

Reading of the books of Samuel and Kings with special attention to the acquisition of a vocabulary. Review of the grammar.

Professor FOWLER and Mr. BROWN

7, 8, 9. *Hebrew Seminary.* Three hours. Through the year. Elective for Graduates and qualified Undergraduates.

Subject for 1902-03: The Psalm Literature. Critical translation of the lyric poetry of the Old Testament and investigation of the characteristics of Hebrew poetry.

Professor FOWLER

NOTE: In succeeding years, corresponding courses in the Wisdom, Legal and Prophetic Literature of the Old Testament will be offered.

### Aramaic and Talmudic

1. *Elementary Aramaic.* Two hours. First Term. Elective for students who have completed Hebrew 1, 2, 3.

Study of the grammar and reading of the Targum.

Mr. BROWN

2. *Biblical Aramaic.* Two hours. Second Term. Elective for students who have completed Aramaic 1.

Reading of all the Aramaic portions of the Old Testament.

Mr. BROWN

3. *Instruction to Talmudic Literature.* Two hours. Third Term. Elective for students who have completed Aramaic 1, 2.

Selected Mishnaic treatises, Pirke Aboth. A study of the ethical teachings of the Rabbis.

Mr. BROWN

### **Arabic**

1, 2, 3. *Elementary Arabic.* Two hours. Through the year. Elective for Seniors and Graduates.

Professor FOWLER

### **New Testament Language and Literature**

5. *The Gospel and First Epistle of John.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Study of the characteristics of Hellenistic Greek, translation, investigation of the questions of date, authorship, point of view and teachings of the Apostle John.

Professor FOWLER and Mr. WHITFORD

1. *The Gospel of Mark and the First Epistle of Peter.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Translation and investigation of the message and thought of Peter.

Professor FOWLER and Mr. WHITFORD

2. *The Gospels of Matthew and Luke.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Rapid translation and comparison of the contents of the three Synoptic Gospels.

Professor FOWLER and Mr. WHITFORD

Courses 7, 6, 3 will not be offered in 1902-03.

### **Biblical Literature and History in English**

4. *The Beginnings of Hebrew History.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

Study of ancient Semitic and Egyptian history, civilization and religions that constitute the background of primitive Hebrew life and thought, interpretation of the prophetic and priestly narratives of the book of Genesis, and reconstruction of the outlines of early Hebrew history in the light of the monuments and primitive Hebrew traditions.

Professor FOWLER

5. *Hebrew History and Literature: The United Kingdom.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors.

Investigation of the political, social and religious life and development of the Hebrew people, from their settlement in Canaan to the division of the Kingdom, special attention being given to the growth of institutions.

Professor FOWLER

6. *Hebrew History and Literature: The Divided Kingdom.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Study of the history of the Hebrews between 937 and 586 B. C. in connection with the great political movements which affected the nations of Southwestern Asia, investigations of the contents, peculiarities and aim of the Old Testament books which belong to the period, and interpretation of the character and work of the great Hebrew prophets in the light of their age.

Professor FOWLER

7, 8, 9. *English Bible Seminary.* Three hours. Through the year. Elective for Graduates and qualified Undergraduates.

Subject for 1902-03: Methods of Biblical Composition. (a) Composition of the Books of Chronicles. (b) Composition of the Hexateuch. (c) The Synoptic Problem.

Courses 1, 2, 3 will not be offered in 1902-03.

## PURE MATHEMATICS

3. *Algebra.* Four hours. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who do not present Solid Geometry and Plane Trigonometry for admission.

Professors CLARKE, DAVIS, MANNING and SLOCUM, Messrs. CURRIER and PACKARD

1. *Geometry, Solid and Spherical.* Four hours. Second Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who do not present Solid Geometry and Plane Trigonometry for admission.

Professors CLARKE, DAVIS and MANNING, Messrs. CURRIER and PACKARD

2. *Trigonometry.* Four hours. Third Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who do not present Solid Geometry and Plane Trigonometry for admission.

Professors CLARKE, MANNING and SLOCUM, Messrs. CURRIER and PACKARD

4. *Spherical Trigonometry.* One hour. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Professor DAVIS

5, 6, 7. *Algebra.* One hour. First Term. Two hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Professors DAVIS and SLOCUM and Mr. CURRIER

8. *Determinants and Theory of Equations.* Three hours. Third Term. Elective for students who have passed in 3, or 5, 6, 7.

Mr. CURRIER

38. *Algebra.* Six hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Mr. CURRIER

39. *Trigonometry, Plane and Spherical.* Six hours. Second Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Professor SLOCUM

40. *Analytic Geometry.* Six hours. Third Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Professor DAVIS

[41. *Differential Calculus.* Five hours. First Term. To be required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering in 1903-04.] Not offered in 1902-03.

[42, 43. *Integral Calculus.* Three hours. Second and Third Terms. To be required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering in 1903-04.] Not offered in 1902-03.

9, 10. *Analytic Geometry.* Three hours. First and Second Terms. Elective for students who have passed in 1, 2 and 3. Required of candidates for the degree of Bachelor of Science, Civil Engineer or Mechanical Engineer, and of Candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Professor DAVIS

11. *Modern Methods of Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10.

Professor MANNING

[30. *Solid Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10.] Not offered in 1902-03.

Professor MANNING

12. *Differential Calculus.* Three hours. Third Term. Elective for students who have passed in 10; required of candidates for the degree of Bachelor of Science, Civil Engineer, Mechanical Engineer or Bachelor of Science in Electrical Engineering, and of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Professor DAVIS

13. *Integral Calculus.* Three hours. First Term. Elective for students who have passed in 12; required of candidates for the degree of Civil Engineer, Mechanical Engineer or Bachelor of Science in Electrical Engineering.

Professor DAVIS

14. *Applications of the Differential Calculus.* Three hours. Second Term. Elective for students who have passed in 12 and 13; required of candidates for the degree of Civil Engineer, Mechanical Engineer or Bachelor of Science in Electrical Engineering.

Professor DAVIS

31. *Applications of the Integral Calculus.* Three hours. Third term. Elective for students who have passed in 13; required of candidates for the degree of Civil Engineer or Bachelor of Science in Electrical Engineering.

Professor DAVIS

15, 16, 17. *Differential Equations.* Three hours. Through the year. Elective for students who have passed in 13. No. 15 is required of candidates for the degree of Bachelor of Science in Electrical Engineering.

Professor MANNING

\*[18, 19, 20. *General Theory of Curves and Surfaces.* Three hours. Through the year. Elective for Graduates and candidates for the degree of Bachelor of Science who have passed in 16 and 30.] Not offered in 1902-03.

Professor MANNING

\*[21, 22, 23. *Theory of Functions.* Three hours. Through the year. Elective for Graduates, for approved Seniors and for candidates for the degree of Bachelor of Science who have passed in 16.

Professor MANNING

\*[24, 25, 26. *Differential Equations, advanced.* Three hours. Through the year. Elective for Graduates who have passed in 23.] Not offered in 1902-03.

Professor MANNING

\*27, 28, 29. *Advanced Algebra.* Three hours. Through the year. Elective for Graduates and for approved Seniors.

Including substitutions and the Galois theory of equations.

Professor MANNING

\*[32, 33, 34. *Quaternions, Non-Euclidean Geometry and Hyper-Space.* Three hours. Through the year. Elective for Graduates and for approved Seniors.] Not offered in 1902-03.

Professor MANNING

## DRAWING

1. *Elementary Mechanical Drawing.* Four hours. First Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Three hours of recitation and two hours of drawing. Nature, care and use of drafting instruments; problems in descriptive geometry. Largely mathematical.

Professor RANDALL

16. *Elementary Mechanical Drawing.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors, and for Freshmen, candidates for the degree of Bachelor of Philosophy.

One hour of recitation and five hours of drawing. Nature, care and use of drafting instruments; elements of orthographic and isometric projection.

Professor RANDALL

5. *Descriptive Geometry.* Four hours. Second Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering. Elective for those who have passed in 1.

Three hours of recitation and two hours of drawing. Theory of orthographic and scenographic projection; discussion, proof and graphic solution of theoretical and practical problems; presentation of principles involved in the solution of engineering problems.

Professor RANDALL

6. *Descriptive Geometry.* Four hours. Third Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering. Elective for those who have passed in 5.

Three hours of recitation and two hours of drawing. Application of the principles of descriptive geometry, in shades and shadows and perspective, in machine drawing and in practical engineering problems.

Professor RANDALL

\*Two or three of these courses are offered each year according to the requirements of the students. For those who have taken all these courses other courses can usually be arranged.

17, 18. *Descriptive Geometry.* Three hours. Second and Third Terms. Elective for Freshmen, candidates for the degree of Bachelor of Philosophy, Sophomores, Juniors and Seniors who have passed in 1 or 16.

Two hours of recitation and two hours of drawing. Similar to 5 and 6. A continuation of 16.

Professor RANDALL

7. *Shades and Shadows and Perspective.* Three hours. First Term. Required of candidates for the degree of Civil Engineer or Mechanical Engineer. Elective for students who have passed in 5, 6 or 17, 18.

Two hours of recitation and two hours of drawing. Derivation and proof of theoretical and practical formulæ. Based on descriptive geometry, largely mathematical.

Professor RANDALL

14. *Shades and Shadows and Perspective, advanced.* Three hours. Third Term. Elective for students who have passed in 7.

Six hours of drawing. Derivation and application of theoretical and practical formulæ. Perspective of shadows. Arranged for students in architecture.

Professor RANDALL

8. *Elementary Machine Drawing.* Three hours. Second Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 5, 6 or 17, 18.

One hour of recitation and five hours of drawing. Presentation of conventional methods of representing the parts of machines; explanation of machines in detail; sketches, detail and assembly drawings.

Mr. PHETTEPLACE

9. *Gearing.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Mechanical Engineering 1, and in Drawing 5, 6 or 17, 18.

One hour of recitation and four hours of drawing. Lectures and recitations on the theory of spur, bevel and screw gearing; accurate construction, in the drawing room, of illustrative problems.

Mr. PHETTEPLACE

10, 11. *Machine Drawing, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 8 and 9.

One hour of recitation and five hours of drawing. Sketches, detail and assembly drawings of complicated machines.

Mr. PHETTEPLACE

12. *Elements of Machine Design.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Mechanical Engineering 1, and in Drawing 10, 11.

Six hours of drawing. Design of the simpler mechanisms.

Mr. PHETTEPLACE

27, 28. *Machine Design, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 10, 11 and 12, and in Mechanics 3, 4 and 6.

One hour of recitation and four hours of calculation and drawing. Extended problems in design, involving the calculation of the strength of the various parts of machines and structures.

Professor KENERSON and Mr. PHETTEPLACE

15. *Constructive Geometry.* Three hours. Through the year. Elective for students who have passed in 1 or 16.

Six hours of drawing. Derivation, graphical test and proof of original methods of solving plane and solid geometrical problems. Mathematical.

Professor RANDALL

13. *Constructive Geometry.* Four hours. First Term. Elective for students who have passed in 1 or 16.

Eight hours of drawing. Similar to 15. For Freshmen who have had the equivalent of 1.

Professor RANDALL

19, 20. *Mechanical Drawing.* Three hours. Second and Third Terms. Elective for students who have passed in 16. For students desiring to continue their course in drawing without taking the theoretical work of descriptive geometry.

Six hours of drawing. Advanced orthographic and isometric projection with numerous practical applications.

Professor RANDALL

21, 22. *Architectural Drawing.* Three hours. Second and Third Terms. Elective for Sophomores, Juniors and Seniors who have passed in Drawing 7.

Six hours of drawing. Principles of architectural design and composition. Working drawings and ordinary office practice.

Professor HOMER.

2, 3, 4. *Freehand Drawing.* One hour. Through the year. Elective for all students.

Two hours of drawing. Training of hand and eye by progressive study of models of machine parts, casts of ornamental forms, and still life objects. Given at the Rhode Island School of Design.

Mr. TOLMAN, Mr. NISBET and Mr. BLANCHARD

## CIVIL ENGINEERING

1, 2, 3. *Surveying.* Three hours. Through the year. Elective for students who have passed in Mathematics 1, 2 and 3 and in Drawing 1 or 16.

Elementary course in land surveying; use of tape, compass, level and transit; adjustment of instruments. Lectures, recitations, field work and drawing.

Professor HILL and Mr. BLANCHARD

**NOTE:** All courses in this department are required of candidates for the degree of Civil Engineer; all except 4, 25, 26, 27 are elective for other students.

4. *Topographical Drawing.* Three hours. Second Term.

Six hours of drawing. Pen and colored topography, conventional signs for maps.

Mr. BLANCHARD

8, 8a. *Surveying, advanced.* One hour and five hours. Third Term. Elective for students who have passed in 1 and 2, but 8 and 8a cannot be elected separately.

Topography and hydrography, city surveying; use of stadia, plane table, sextant and barometer; precise base-line measurements with steel tape. Methods as in 1, 2, 3. The field work (8a) is done during the spring recess.

Professor HILL and Mr. BLANCHARD

5, 5a, 6, 7. *Railroad Engineering.* Two, four, three and three hours. First, Second and Third Terms. Elective for students who have passed in 3 and 8, but 5 and 5a cannot be elected separately.

Theory, location, construction and economics. Methods as in 1, 2, 3.

Professor HILL and Mr. BLANCHARD

10. *Hydraulic Engineering.* Three hours. Second Term. Elective for Juniors and Seniors.

Consideration of water supply mainly from a sanitary standpoint. Lectures, recitations and seminary work.

Professor HILL

11. *Hydraulic Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13 and Mechanics 4.

Supplements the courses in Mechanics 7 and 8, which give the theoretical treatment of the subject. Consideration of Water Supply mainly from an engineering standpoint; irrigation, pumps and pumping machinery. Lectures, recitations and seminary work.

Professor HILL

15. *Masonry.* Three hours. Second Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Calculation of stresses in, and design of, arches, retaining walls and dams; materials of construction. Lectures, recitations and drawing.

Mr. BLANCHARD

16. *Geodesy.* Three hours. Second Term. Elective for students who have passed in 3 and 8 and Astronomy 4.

Problems in geodetic surveying. Lectures and computations.

Professor HILL

17. *Sanitary Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Sewerage and house drainage. Lectures, recitations and seminary work.

Professor HILL

18. *Roads and Pavements.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Professor HILL

[19, 20,] 21. *Laboratory Investigations.* Three hours. Through the year. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6. 19 and 20 not offered in 1902-03.

Use and adjustment of instruments, testing materials, stereotomy.

Professor HILL

NOTE: For 1902-03 students in Civil Engineering will take Mechanical Engineering 6 and 7 in place of Civil Engineering 19 and 20.

25, 26, 27. *Lettering.* One hour. Through the year.

Two hours of drawing.

Professor HILL

28. *Framed Structures.* Three hours. Third Term.

Calculation of stresses in roofs and bridges by analytical methods. Lectures, recitations and seminary work.

Mr. BLANCHARD

NOTE: Courses 28 to 32, inclusive, are elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 1 or 16.

29. *Structural Details.* Three hours. First Term.

Lectures and computations.

Mr. BLANCHARD

30. *Graphic Statics.* Three hours. First Term. Elective for students who have passed in 28, 29.

Drawing and computations.

Mr. BLANCHARD

31. *Bridge Design.* Six hours. Second Term. Elective for students who have passed in 30.

Drawing, computations and field excursions. Design of plate girders, riveted and pin-connected trusses, with working drawings.

Mr. BLANCHARD

32. *Bridges.* Three hours. Third Term. Elective for students who have passed in 28.

Theory of cantilever, draw, continuous, suspension, and arched structures. Lectures, recitations and seminary work.

Mr. BLANCHARD

34. *Mineralogy.* Three hours. First Term. Elective for Juniors and Seniors.

The economic effect of minerals in building stones.

This course will be required for the degree in Civil Engineering provided suitable arrangements can be made.

Mr. BLANCHARD

\*35. *Municipal Improvements.* Three hours. First Term. Elective for Juniors and Seniors.

The economic and social aspects of sewerage, water works, pavements, etc.

Professor HILL

## MECHANICAL ENGINEERING

1. *Kinematics.* Three hours. First Term. Elective for students who have passed in Drawing 5, 6 or 17, 18.

Description of the mechanical devices used in machines, with the presentation and proof of the mathematical laws governing the motion of their parts. Stahl and Wood's Elements of Mechanism; recitations, graphical and analytical solution of problems.

Mr. PHETTEPLACE

9. *Thermodynamics of the Steam Engine.* Three hours. Third Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Physics 1, 2, 4 and in Mathematics 12, 13 and 14.

Principles of gases and vapors as applied to the steam engine and other heat engines.

Professor KENERSON

3, 4, 5. *Steam Engineering.* Three hours. Through the year. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 9.

Principles of heat engines and generators; methods of testing. Lectures, recitations and laboratory work.

Professor KENERSON

\* This course will be offered provided ten or more students elect.

6, 7, 8. *Materials of Engineering.* Three hours. Through the year. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in Mechanics 3, 4, 6.

Study of the sources, manufacture and properties of important materials used in engineering; laboratory tests on the strength of materials.

Professor KENERSON

10, 11, 12. *Wood-work.* Three hours. Required of candidates for the degree of Mechanical Engineer. Elective for Sophomores, Juniors and Seniors.

Six hours of attendance. Carpentry, wood-turning and pattern-work. These courses may be begun in any term.

Mr. CADY

NOTE: Though Courses 10 to 18 are all open to Sophomores, Juniors and Seniors, no more than two of them may be counted towards the degree of Bachelor of Arts, Bachelor of Philosophy or Bachelor of Science.

13, 14, 15, 16. *Metal-work.* Three hours. Required of candidates for the degree of Mechanical Engineer. Elective for Sophomores, Juniors, and Seniors.

Six hours of attendance. Chipping, filing and work with the engine-lathe, planer, shaper, milling-machine, vertical drill and surface-grinder. These courses may be begun in any term. See note under 10, 11, 12.

Mr. STARK

17. *Wood-work.* Three hours. Elective during any term for Sophomores, Juniors and Seniors.

Six hours of attendance. Carpentry and wood-turning. Intended for students who wish to take only one term of wood-work. See note under 10, 11, 12.

Mr. CADY

18. *Metal-work.* Three hours. Elective during any term for Sophomores, Juniors and Seniors.

Six hours of attendance. Chipping, filing and lathe-work. Intended for students who wish to take only one term of metal-work. See note under 10, 11, 12.

Mr. STARK

*Thesis.* A graduation thesis is required of all students who are candidates for the degree of Mechanical Engineer. It may be based either on extended independent study, on original experiments by the student, or on an original design of some complicated machine. In any case it must exhibit satisfactory ability in the student as an engineer.

## Mechanics

Professor CLARKE

3, 4, 6. *Mechanics of Solids.* Three hours. Through the year. Elective for students who have passed in Mathematics 9, 10 and 12, and who are taking Mathematics 13.

Statics; dynamics, including rectilinear and curvilinear motion, virtual velocity, moment of inertia, work, energy and power, friction; strength of materials, including tension, compression, shearing, torsion, flexure, arches and methods of graphical solution of problems.

7, 8. *Mechanics of Fluids.* Three hours. First and Second Terms. Elective for Students who have passed in 3, 4, 6.

Hydrostatics of liquids, including pressure of liquids in tanks and reservoirs, earth pressure and retaining walls, immersion and flotation; hydrodynamics, including steady flow, impulse and resistance.

**NOTE:** Courses 3, 4, 6, 7 and 8 cover essentially the same ground as Church's treatise on the Mechanics of Engineering, supplemented by a large number of original problems illustrative of the principles under the different conditions which arise in their application.

## ASTRONOMY

1, 2, 6. *General Course.* Three hours. Through the year. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

Fundamental conceptions of the science, methods of professional study, and present state of our knowledge of the heavenly bodies. Young's General Astronomy, lectures and abstracts upon assigned topics. Designed as a culture course or as a preparation for technical work. Increased attention will be given to observation of the heavens.

Professor UPTON

3, 4, 5. *Geodetic Astronomy.* Three hours. Required of engineering students. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

The application of astronomy to geodesy; use of the sextant, transit and zenith telescope for determining time, latitude, longitude and azimuth.

Professor SLOCUM

3, 18, 19. *Nautical Astronomy.* Three hours. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

This is a new course and will include the principles of navigation, the methods of determining the position of a ship at sea, together with the use of sextant, compass and chart for determining latitude, longitude, bearings and courses.

Professor SLOCUM

**NOTE:** Courses 3, 4, 5 and 3, 18, 19 cover in part the same ground and cannot both be taken by the same student, but either can be taken at the same time as the general course 1, 2, 6.

8, 9, 10. *Practical Astronomy.* Three hours. Through the year. Elective for Graduates and for Undergraduates who have shown special aptitude in either 1, 2, 6 or 3, 4, 5.

Advanced study of geodetic applications of astronomy; method of least squares. Doolittle's Practical Astronomy, with instrumental observations.

Professor UPTON

14, 15, 16. *Mathematical Astronomy.* Three hours. Through the year. Elective for Graduates.

The mathematical theory of planetary and cometary orbits; micrometer observations and calculation of orbits.

Professor UPTON

## PHYSICS

1, [2], 4. *Elementary Physics.* Three hours. Through the year. Elective for Sophomores, Juniors, Seniors and others who have passed in Mathematics 1, 2, 3.

First Term, kinematics and dynamics; Second Term, molecular physics; Third Term, electricity. Daniell's Principles of Physics, lectures illustrated by experiments and the lantern. Weekly written exercises corrected in detail by the instructors. Designed for those who have had little previous training in physics; presupposes only a good knowledge of elementary mathematics. The entire course is a unit, setting forth the principles of modern physics. It is sufficiently broad to be a commentary upon whatever preliminary training in physics the student may have had, and to serve as a theoretical introduction to the professional courses.

Professor BARUS

32. *Optics.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in 1.

Professor BARUS

**NOTE:** The three courses, 32, 37, 38, consist of lectures on the elementary principles of Optics, Acoustics and Heat. They alternate, in turn, with 2, for the convenience of the other courses. 32 is offered in 1902-03.

[37. *Acoustics.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in 1.] Not offered in 1902-03.

Professor BARUS

[38. *Heat.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in 1.] Not offered in 1902-03.

Professor BARUS

5, 9, 10. *Physical Measurements.* Three hours. Through the year. Elective for students who have passed in 1, 2, 4.

One lecture hour and four hours in the laboratory. Elementary theory and practice of physical manipulation. Each student is required to present a neat and comprehensive report of each experiment performed and to solve such problems as may be from time to time assigned.

Professor PALMER

13, 14, 16. *Mathematical Treatment of Dynamical Problems.* Three hours. Through the year. Elective for Seniors and Graduates who have passed in 10 and Mathematics 16.

Lectures. First Term, discussion of the general principles of dynamics and the development of the general equations of motion; Second and Third Terms, application of these principles to special problems in thermodynamics and hydrodynamics.

Professor PALMER

17, 18, 19. *Laboratory Course, advanced.* Three hours. Through the year. Elective for students who have passed in 10.

Six hours of attendance. For those who are already familiar with the use of physical apparatus and are capable of carrying on investigations more or less independently. Special problems and reference to original sources for methods of solution. Care is taken to develop accuracy of observation, and neatness and clearness in the written reports of experiments.

Professors BARUS, PALMER and WATSON

20, 21. *Harmonic Analysis.* Three hours. Second and Third Terms. Elective for Seniors and Graduates who have passed in 1, 2, 4 and Mathematics 14, 15.

Importance of Fourier's method shown by examples taken from the analytical theory of heat, from elastics, alternating electricity, and elsewhere; treatment by the aid of spherical harmonics, Bessel functions and Lamé functions.

Professor BARUS

*21. Behavior of Matter through Long Ranges of Temperature.* Elective for Graduates.

Original research. Investigation of accurate methods and data in absolute pyrometry; determination of the high temperature constants of non-volatile bodies with a view to the elucidation of fundamental questions in the physics of the earth's crust.

Professor BARUS

NOTE: Courses 22 to 25, inclusive, occupy more or less time a week, according to the requirements of the students. These courses are definitely organized, and the requisite apparatus is provided for conducting them. Other courses of original research are offered to suit the special needs or training of advanced students. The order of interchange between 13, 14, 16 and 26, 27, 28, and between 20, 21 and 29, 30, 31 is not fixed. The preference of the applicants for instruction will be regarded in determining which shall be given.

*23. Behavior of Matter through Long Ranges of High Pressure.* Elective for Graduates.

Original research. Thermodynamics of the change of state from solid to liquid, due either to fusion or to solution, with especial reference to the continuity of solid and liquid, and to the location of the lower critical temperature.

Professor BARUS

*24. Absolute Viscosity of Solids as Compared with Liquids and Gases.* Elective for Graduates.

Original research. Investigation of absolute data for the viscosity of solids.

Professor BARUS

*25. Physical Properties of the Iron Carburets.* Elective for Graduates.

Original research. A consideration of the physical properties of iron, steel and cast iron with reference to their bearing on metallurgical and electro-technical problems.

Professor BARUS

*26, 27, 28. Mathematical Theory of Electricity and Magnetism.* Three hours. Through the year. Elective for Graduates and Seniors who have passed in 10 and Mathematics 16.

Lectures. A development of the mathematical theory of electricity and magnetism, and a discussion of the more important problems of electrical science from the standpoint of Maxwell's Treatise.

Professor PALMER

NOTE: This course alternates with 13, 14, 16.

29, 30, 31. *Physics, advanced.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in Mathematics 12, 13 and 14.

Lectures on dynamics, potential, elasties, hydrostatics, hydrodynamics, viscosity, capillarity, electrostatics, magnetism, electromagnetism, thermo-electrics, induction, Fresnel's optics, the electro-magnetic theory of light, thermal analytics and thermodynamics. Completed in two years. Alternating if desirable with 20, 21.

Professor BARUS

**NOTE:** Candidates for the degree of Master of Arts with a major in physics will be held responsible for at least one of the advanced courses in theoretical physics. The requirements for non-resident students with a minor in physics are quite as advanced as for students in residence with a major in physics. The department is able to offer every reasonable facility both for research work and for the study of the higher problems in physics; it is not able to offer much encouragement to those wishing to take degrees not in residence.

36, 39. *Precision Measurements in Photometry, Electricity and Magnetism.* Three hours. First and Second Terms. Elective for students who have passed in 10 and Mathematics 13.

Six hours in the laboratory.

Professor PALMER

46. *Applied Electro-Chemistry.* Three hours. Third Term. Elective for students who have passed in 39 and 15.

Six hours in the laboratory.

Professor PALMER

### Electrical Engineering

Professor WATSON

11. *Elementary.* Three hours. First Term. Elective for students who have passed in 4.

Definite instruction in methods of generating and utilizing electric currents; introductory to the technical courses.

12. *Dynamo Electric Machinery.* Three hours. Second Term. Elective for students who have passed in 11, and who have taken or are taking 5, 9, 10 and Mathematics 12.

Two hours of recitation, and two hours of laboratory practice. Technical study of theory and calculations for dynamo-electric machinery.

15. *Laboratory.* Three hours. Third Term. Elective for students who have passed in 11 and 12.

One hour of recitation and four hours of laboratory work. Practical methods of operating and testing various sizes and types of standard dynamos.

33. *Periodic or Alternating Currents of Electricity.* Three hours. Third Term. Elective for students who have passed in 15, and who have taken or are taking Mathematics 15.

A mathematical and graphical treatment.

34. *Utilization of Alternating Currents.* Three hours. Second Term. Elective for students who have passed in 33.

35. *Laboratory, Alternating Current Machinery.* Three hours. Third Term. Elective for students who have passed in 34.

Six hours in the laboratory. Testing of apparatus. The construction of new apparatus may be included, in the case of suitably qualified students, as a minor portion of this course.

40. *Development and Scope of Industrial Electricity.* Three hours. First Term.

May be taken with 11.

41. *Telephone and Telegraph Engineering.* Three hours. Third Term.

Two hours of recitation and one hour of laboratory work in construction of electrical apparatus. May be taken with 12.

42. *Design and Calculation of Direct Current Machinery.* Three hours. Third Term.

Time spent in actual drawing will be counted like laboratory work. May be taken with 15.

43. *Electric Railway Engineering.* Three hours. First Term. Elective for students who have passed in 15.

44. *Design and Calculation of Alternating Current Machinery.* Three hours. Second Term. Elective for students who have passed in 33.

45. *Central Station Design, Equipment and Systems of Distribution.* Three hours. Second Term. Elective for students who have passed in 33.

47. *Specific Engineering Problems.* Three hours. Third Term.

Reading and discussion. Seminary method.

## CHEMISTRY

1, 2, 3. *Descriptive Chemistry.* Three hours. Through the year. Elective for Undergraduates.

Non-metals; metals, their metallurgy, compounds, and practical applications; theoretical chemistry. Lectures with experiments, written exercises, individual laboratory work.

Professor BUCHER and Mr. PARMENTER

4. *Qualitative Analysis.* Three hours. First Term. Elective for Juniors.

Six hours of attendance. A study of the properties of the metallic elements, together with their separation from certain of their compounds. Laboratory work, accompanied by recitations in qualitative analysis and in chemical philosophy, and exercises in stoichiometry.

Professor APPLETON and Mr. DUBOIS

5. *Qualitative Analysis, continued.* Three hours. Second Term. Elective for Juniors.

Six hours of attendance. A study of the principal non-metals and the acids formed by them, as well as of the methods of separation and recognition of acids and acid radicles.

Professor APPLETON and Mr. DUBOIS

6. *Quantitative Analysis.* Three hours. Third Term. Elective for Juniors.

Six hours of attendance. Study of quantitative precipitations and separations of the most important elements and compounds: a somewhat thorough review of the principles upon which quantitative apparatus is constructed, including the theory of the chemical balance, the merits of the different systems of weights and measures, the use of burettes, graduated flasks, etc.; studies in chemical philosophy and stoichiometry continued. Chiefly laboratory work.

Professor APPLETON and Mr. DUBOIS

- 7, 8, 9. *Quantitative Analysis, advanced.* Six hours. Through the year.

Twelve hours of attendance. The assaying of metallic ores, analysis of agricultural materials, including commercial fertilizers, the testing of chemicals used in textile establishments, etc.

Professor APPLETON and Mr. DUBOIS

- 10, 11, 12. *Organic Chemistry.* Six hours. Through the year. Lectures, recitations and laboratory work. An extended series of exercises in the preparation and quantitative analysis of organic compounds, so selected as fairly to represent the different branches of this department.

Professor BUCHER and Mr. PARMENTER

13. *Assaying.* Six hours. Third Term.

Twelve hours of attendance.

Professor APPLETON and Mr. DUBOIS

23. *The Scouring and Dyeing of Wool.* Six hours. Third Term.

Twelve hours of attendance. The cleansing of wool in the fleece, removal of burrs, preparation and use of mordants, dye-stuffs, etc.

Professor APPLETON and Mr. DUBOIS

31, 32, 33. *Industrial Chemistry.* One, Two or Three Terms. For Graduates.

Lectures and laboratory work.

Professor APPLETON

51, 52, 53. *Organic Chemistry, advanced course.* Three hours. For Juniors, Seniors and Graduates.

Professor BUCHER

61, 62, 63. *Inorganic Chemistry, advanced course.* For Juniors, Seniors and Graduates.

Professor BUCHER

71. *Organic Preparations, advanced course.* Elective for Seniors and Graduates.

Professor BUCHER

81. *Inorganic Preparations, advanced course.* Elective for Juniors, Seniors and Graduates.

Professor BUCHER

91. *Research work in Chemistry.* Elective for Graduates.

Professor BUCHER

## ZOOLOGY, GEOLOGY AND ANTHROPOLOGY

Professor PACKARD

### Zoology

1. *General Course on Invertebrate Animals.* Three hours. Second Term. Elective for Juniors and Seniors.

3. *Organic Evolution.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Primary and secondary factors of evolution; relation of animals to the world around them; variation of species; zoogeography; effects of light, changes of temperature, food, climate; effects of isolation; kinetogenesis or dynamical evolution; mimicry; heredity; views held by different schools of evolutionists. Lectures and demonstrations.

### Geology

1. *Physical Geology.* Three hours. First Term. Elective for Seniors.

5. *Structural and Stratigraphic Geology.* Three hours. First Term. Elective for Seniors.

Six hours of attendance. Field and laboratory work.

2. *Historical Geology, including Paleontology.* Three hours. Second Term. Elective for Seniors, or those who have taken Geology 1, 5 and Zoölogy 1 and 3.

Lectures, text-book and laboratory work.

9. *Paleontology.* Three hours. Third Term. Elective for those who have taken Geology 1, 2.

11. *Mineralogy.* Three hours. First Term.  
See Civil Engineering 34.

### **Anthropology**

1. *General Course.* Three hours. Third Term. Elective for Seniors and Graduates.

The principles of ethnology, ethnography and prehistoric archæology; man as related to other primates, origin of man, prehistoric races, language and race, writing, arts of life, amusements, primitive culture, including folk-lore, myths, primitive religious cults, and primitive society. Lectures illustrated by bone, stone and bronze relics of the prehistoric races of Europe, Asia and Africa, by American stone and bone implements, by collections from New England shell heaps, and by lantern views illustrating the fossil races of man and his art-remains in the Old World.

### **COMPARATIVE ANATOMY**

15, 1, 35. *General Anatomy and Physiology.* Three hours. First, Second and Third Terms. Elective for Undergraduates.

Six hours of attendance. For general students as well as for those who expect to pursue other courses in the department. By means of laboratory work in gross and minute anatomy and physiology, it introduces the student to scientific methods, to the structure and function of the human body, and to the general principles of Biology.

Professors GORHAM and TOWER

3, 4, 34. *Comparative Anatomy of Vertebrates.* Three hours. First, Second and Third Terms. Elective for Sophomores, Juniors and Seniors who have passed with credit in 15, 1, 35.

Six hours of attendance. Critical and comparative study of the vertebrate organs, with special attention to the structure of man. A limited number of students are permitted to attend the clinics at the Rhode Island Hospital.

Dr. WILLIAMS

2. *Invertebrate Dissection.* Three hours. First Term. Elective for students who have passed in 1.

Six hours of attendance. Practical laboratory course on the comparative anatomy of the lower animals.

The very large collection of zoölogical material in the laboratory and the rich material frequently contributed by the United States Fish Commission from the deep sea dredging

excursions are always accessible to the students. Abundant living material is also readily available, since the laboratory is situated near the salt water and within a few miles of two floating laboratories located on opposite sides of Narragansett Bay.

Professor MEAD and Dr. WILLIAMS

- 16, 17, 30. *Anatomy of the Nervous System.* Three hours. Through the year. Elective for Juniors and Seniors who have passed in 3, 4.

Six hours of attendance. Intended to acquaint the student with the gross anatomy and the microscopic structure of the nervous system in vertebrates, especially in man. Attention to the phylogeny, embryology and physiology of the nervous system and to special nerve-methods in micro-technique.

Professor MEAD

- 18, 19, 20, 21. *Physiology.* Three hours. Third, First, Second and Third Terms. Elective for Juniors and Seniors who have taken Chemistry 2.

Six hours of attendance. Third Term, the chemistry of the proteids, carbohydrates and fats; First Term, the chemistry of salivary, gastric and pancreatic digestions, and the blood and the bile; Second Term, the qualitative and quantitative analysis of certain constituents of the animal body; Third Term, physical physiology.

Professor TOWER

9. *Bacteriology.* Three hours. Second Term. Elective for Juniors and Seniors who have passed in 1.

Six hours of attendance. Preparation and microscopic study of bacteria, the preparation of culture media, isolation, systematic study and determination of unknown species, qualitative and quantitative biological examination of water, milk, air and soil; methods of determining pathogenic properties of bacteria; methods of sterilization and disinfection; special work on pathogenic forms.

Professor GORHAM

25. *Biological Theories and Biological Problems.* Elective for Graduates.

Weekly seminary. A general account of the history of biology, discussion of past and present biological theories, examination of certain biological problems, and suggestion of possible methods for their solution.

Professor MEAD

27. *Bacteriological Research.* Elective for Graduates.

Laboratory work and seminary.

Professor GORHAM

28. *Advanced Physiology.* Through the year. Elective for Graduates who have sufficient knowledge of chemistry and physiology.

Laboratory work, supplemented by a weekly seminary at which German authors are read and discussed.

Professor TOWER

29. *Human Anatomy.* Elective for Graduates.

Laboratory instruction. In addition to the course in practical dissection, graduate students will be given an opportunity to attend certain operations at the hospital and to be present at autopsies.

Dr. PEGRAM and Dr. PERKINS

36. *Advanced Histology and Pathology.* Three hours. Third Term.

Intended to introduce the student to the gross and microscopic structure of typical forms of normal and diseased tissues.

Dr. FULTON

## BOTANY

1, 2, 3. *General Morphology, Physiology and Ecology.* Three hours. Through the year. Elective for Undergraduates.

Six hours of attendance. Comparative study of the seed, the seedling and the mature plant; variations due to environment; experiments in plant physiology, etc. Intended especially to train the student to observe and properly interpret the more obvious phenomena of plant life, as well as to furnish the necessary preparation for more advanced work.

Professor BAILEY and Mr. COLLINS

7. *Lower Cryptogams.* Three hours. First Term. Elective for students who have passed in 3.

Six hours of attendance. Comparative study of the structure and development of types of the algæ and lower fungi; collection and classification.

Mr. COLLINS

12. *Higher Cryptogams.* Three hours. Second Term. Elective for students who have passed in 7.

Six hours of attendance. Structure, development and classification of the hepaticæ, mosses, ferns, horse-tails and club-mosses.

Professor BAILEY and Mr. COLLINS

9. *Mycology.* Three hours. Third Term. Elective for students who have passed the required examinations.

Six hours of attendance. Structure, development, collection, preservation and classification of edible, poisonous and other economic fungi; plant diseases.

Mr. COLLINS

NOTE: 4, 5, 14 alternates with 7, 12, 9 and will be offered in 1903-04.

## BIBLIOGRAPHY

Mr. KOOPMAN

1. *Books and Libraries.* Three hours. Third Term. Elective for Seniors and Graduates. Number limited to twelve.

A general rather than a technical course, being designed primarily for all users of libraries, but serving as an introduction for those intending to make library work a profession. Historical bibliography, manuscripts, printing, modern book-making, publishing, book-selling, book-buying, practical authorship; libraries, ancient and modern, their chief problems, management and use. Lectures by the instructor, oral reports and written discussions by the students.

THE LIBRARY OF THE  
MAR 26 1904  
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BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

ACADEMIC YEAR

1903 - 1904



PROVIDENCE, R. I.

REMINGTON PRINTING CO., 63 WASHINGTON ST.

1903.

# CALENDAR, 1903-1904

1903							1904							1904										
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
July	..	1	2	3	4			Jan.	3	4	5	6	7	8	9	July	3	4	5	6	7	8	9	
	5	6	7	8	9	10	11		10	11	12	13	14	15	16		10	11	12	13	14	15	16	
	12	13	14	15	16	17	18		17	18	19	20	21	22	23		17	18	19	20	21	22	23	
	19	20	21	22	23	24	25		24	25	26	27	28	29	30		24	25	26	27	28	29	30	
	26	27	28	29	30	31	..		31	..	1	2	3	4	5		31	..	1	2	3	4	5	
Aug.	..	..	..	..	..	1		Feb.	..	1	2	3	4	5	6		Aug.	..	1	2	3	4	5	6
	2	3	4	5	6	7	8		7	8	9	10	11	12	13			7	8	9	10	11	12	13
	9	10	11	12	13	14	15		14	15	16	17	18	19	20			14	15	16	17	18	19	20
	16	17	18	19	20	21	22		21	22	23	24	25	26	27			21	22	23	24	25	26	27
	23	24	25	26	27	28	29		28	29	..	..	..	..	..			28	29	30	31	..	..	..
	30	31	..	..	..	..	..		Mar.	..	1	2	3	4	5		Sept.	..	..	..	..	1	2	3
Sept.	..	1	2	3	4	5			6	7	8	9	10	11	12			4	5	6	7	8	9	10
	6	7	8	9	10	11	12		13	14	15	16	17	18	19			11	12	13	14	15	16	17
	13	14	15	16	17	18	19		20	21	22	23	24	25	26			18	19	20	21	22	23	24
	20	21	22	23	24	25	26		27	28	29	30	31	..	..			25	26	27	28	29	30	..
Oct.	..	..	..	1	2	3		Apr.	..	..	..	..	1	2		Oct.	..	..	..	..	..	..	1	
	4	5	6	7	8	9	10		3	4	5	6	7	8	9			2	3	4	5	6	7	8
	11	12	13	14	15	16	17		10	11	12	13	14	15	16			9	10	11	12	13	14	15
	18	19	20	21	22	23	24		17	18	19	20	21	22	23			16	17	18	19	20	21	22
	25	26	27	28	29	30	31		24	25	26	27	28	29	30			23	24	25	26	27	28	29
Nov.	..	..	..	..	..	..	..	May	1	2	3	4	5	6	7		Nov.	..	..	..	..	..	..	..
	1	2	3	4	5	6	7		8	9	10	11	12	13	14			6	7	8	9	10	11	12
	8	9	10	11	12	13	14		15	16	17	18	19	20	21			13	14	15	16	17	18	19
	15	16	17	18	19	20	21		22	23	24	25	26	27	28			20	21	22	23	24	25	26
	22	23	24	25	26	27	28		29	30	31	..	..	..	..			30	31	..	..	..	..	..
Dec.	..	..	..	..	..	..	..	June	..	..	..	1	2	3	4		Dec.	..	..	..	..	1	2	3
	6	7	8	9	10	11	12		5	6	7	8	9	10	11			4	5	6	7	8	9	10
	13	14	15	16	17	18	19		12	13	14	15	16	17	18			11	12	13	14	15	16	17
	20	21	22	23	24	25	26		19	20	21	22	23	24	25			18	19	20	21	22	23	24
	27	28	29	30	31	..	..		26	27	28	29	30	..	..			25	26	27	28	29	30	31

## UNIVERSITY CALENDAR, 1903-1904

1903.

*September 2.* Wednesday. Annual Meeting of the Corporation (first Wednesday in September).

*September 11, 12, 14, 15.* Friday, Saturday, Monday and Tuesday.

Examinations for admission to the Freshman Class  
and to Advanced Standing.

*September 15.* Tuesday. Last day for registration of Undergraduate Students.

*September 16.* Wednesday. ACADEMIC YEAR BEGINS: 8:40 A. M.

*September 16.* Wednesday. Last day for registration of Resident Graduate Students.

*September 26.* Saturday. Examination in Greek for the President's Premiums.

*September 30.* Wednesday. Examinations in Latin for the President's Premiums.

*October 3.* Saturday. Examination in Mathematics for the Hartshorn Premiums.

*October 7.* Wednesday. Examination in French for the President's Premiums.

*November 26-28.* Thursday, Friday and Saturday.

THANKSGIVING RECESS.

*December 17-23.* Thursday to Wednesday. Term Examinations.

*December 24, 1903, to January 5, 1904.* Thursday to Tuesday inclusive.

CHRISTMAS RECESS.

1904.

- January 5.* *Tuesday.* Last day for registration of Undergraduate Students.
- January 6.* *Wednesday.* SECOND TERM BEGINS: 8.40 A. M.
- February 22.* *Monday.* Washington's Birthday. No University exercises.
- March 12-18.* *Saturday to Friday.* Term Examinations.
- March 19-29.* *Saturday to Tuesday inclusive.*
- SPRING RECESS.
- March 29.* *Tuesday.* Last day for registration of Undergraduate Students.
- March 30.* *Wednesday.* THIRD TERM BEGINS: 8.40 A. M.
- March 31.* *Thursday.* Last day for receiving theses of candidates for the Doctorate.
- May 30.* *Monday.* Memorial Day. No University exercises.
- May 31.* *Tuesday.* Last day for examinations for Advanced Degrees.
- June 2-8.* *Thursday to Wednesday.* Term Examinations.
- June 9.* *Thursday.* Hicks Prize Debate: Manning Hall, 8.00 P. M.
- June 10.* *Friday.* Class Day.
- June 12.* *Sunday.* Baccalaureate Sermon: First Baptist Meeting House, 4.30 P. M.
- June 13.* *Monday.* Ivy Day: Pembroke Hall.
- June 13.* *Monday.* Sophomore Prize Declamation: Manning Hall, 8.00 P. M.
- June 14.* *Tuesday.* Annual Meeting of the Phi Beta Kappa Society: 5 University Hall, 9.30 A. M.

- June 14.*      *Tuesday.* Annual Meeting of the Alumni, Manning Hall.
- June 15.*      *Wednesday.* ONE HUNDRED AND THIRTY-SIXTH ANNUAL COMMENCEMENT (third Wednesday in June): First Baptist Meeting House, 10.00 A. M.
- June 16.*      *Thursday.* Meeting of the Corporation.
- June 16-20.*    *Thursday, Friday, Saturday and Monday.* Examinations for Admission to the Freshman Class and to Advanced Standing.

SUMMER VACATION.

- September 7.*     *Wednesday.* Annual Meeting of the Corporation (first Wednesday in September).
- September 16-20.* *Friday, Saturday, Monday and Tuesday.* Examinations for admission to the Freshman Class and to Advanced Standing.
- September 20.*     *Tuesday.* Last day for registration of Undergraduate Students.
- September 21.*     *Wednesday.* ACADEMIC YEAR BEGINS: 8.40 A. M.



# BROWN UNIVERSITY

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## ANNUAL ANNOUNCEMENT, ACADEMIC YEAR

1903-1904

The Academic Year begins Wednesday, September 16, with Chapel Service at 8.40 A. M. At the close of this service the classes will begin their sessions according to the Time Schedule.

### EXAMINATIONS

Examinations for admission to the Freshman Class will be held in Wilson Hall, beginning Friday, September 11, at 8 A. M.

Examinations for admission to the Sophomore, Junior and Senior classes will be held on Monday and Tuesday, September 14 and 15. Candidates are to report at the Registrar's office on Monday, at 9 A. M.

### REGISTRATION

The registration of undergraduate students will begin on Saturday, September 12, at 9 A. M., and close on Tuesday, September 15, at 6 P. M.

The Committee on Admission to the Freshman Class, the Committee on Admission to Advanced Standing and the Committee on Courses for Special Students will be in session on these days in the Administration Building.

All undergraduate students registering or in any way changing their registration after that time will be charged a fee of three dollars, unless a satisfactory explanation is made to the Dean.

The registration of graduate students will begin on Saturday, September 12, at 9 A. M. and close on Wednesday, September 16, at 4 P. M.

The Committee on Graduate Students will be in session in No. 5 Wilson Hall.

Candidates for admission to the Freshman Class will report for registration to the Committee on Admission to the Freshman Class. The official notification of admission and other credentials must be presented at the time of registration.

Members of the Sophomore, Junior and Senior classes who have no conditions or failures, will report at the Registrar's office. Those having conditions or failures will report to the Committee on Admission to Advanced Standing.

Candidates for admission to advanced standing will also report to the above committee.

Candidates for admission as special students will report to the Committee on Special Students. All applicants must satisfy the committee and the officers of instruction, by examination or otherwise, of their fitness to take the courses desired. These examinations are held on Friday, Saturday, Monday and Tuesday, September 11, 12, 14 15.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed. The guarantor must be the parent or guardian, or other responsible person.

In consideration of the admission of .....  
as a student in Brown University, I hereby guarantee and promise to pay to said University all dues for rent, tuition, and incidental and other expenses properly chargeable to said ..... as such student, as and when the same shall respectively become payable.

A student paying the full room expenses for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

Copies of the above form are enclosed with this circular and students are requested to have them filled out and returned to the Registrar before September 9. Students whose guarantees have already been filed will not be required to fill out new ones.

### SUGGESTIONS FOR GRADUATE STUDENTS

The attention of students contemplating graduate study at Brown University is called to the graduate rules, as stated in the catalogue. All such students will find it greatly to their advantage to correspond with the professors of the departments in which they may wish to be enrolled, during the summer, with the object of ascertaining preliminarily to which of the graduate courses offered, they may be admitted. Students who are able to offer extra work in accordance with §2 of the rules relating to graduate instruction will do well to secure a certificate for the same from the Registrar and to submit it to the committee, addressed as below. Students who are not graduates of Brown University are advised to send in their diplomas, certificates, etc., together with a marked catalogue or definite statement of the courses pursued in their undergraduate or other work, to the Committee on Graduate Students, care of the Registrar, before September 9th. The committee will then be able to pass on the credentials before the first day of the academic year and to secure for the students prompt registration.

Blanks for preliminary registration may be obtained from the Registrar.

### CHOICE OF ELECTIVES.

Students will find enclosed elective lists, which must be marked and returned to the Registrar before the registration cards can be made out. It is urgently requested that these lists be returned, if possible, before September 9th, in order

to facilitate the work of the Registrar. The student advisers and the officers of instruction may be consulted on Saturday, Monday and Tuesday, September 12, 14, 15, as announced on the bulletin boards. Students should avail themselves of the opportunities thus offered for consultation; it is of the greatest importance to make wise choices of studies for the autumn term, as few changes can be made in the second or third terms.

### NOTES

Students desiring to elect extra studies must designate them on their elective lists.

In making elections, students must not select more than one study in the same group. Courses not scheduled will be arranged with the instructors.

Candidates for the degree of Bachelor of Arts or Bachelor of Philosophy, are requested to read carefully the statements regarding the curriculum, and to make out their lists in accordance with the information there given.

Members of the Senior Class who are candidates for the degree of Civil Engineer are required to hand the subjects of their theses to Professor Hill on or before October 31, 1903.

Students desiring to rent rooms or to obtain room-mates, should apply to the Registrar.

For official notices students should consult the bulletin boards in the north corridor of University Hall or in the Administration Building.

### CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS

Candidates are required to take certain studies before the completion of the course, as shown in the following tabulation:

*Ancient Language* (either Latin or Greek or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

*Modern Language* (either French or German or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

If only one language is presented for admission the elementary course in the language not presented must be taken.

Languages in which elementary work only is presented for admission must be continued. If elementary work only is presented in one language that language must be continued in the Freshman year. If elementary work only is presented in both languages the continuation of one of these may be postponed to the Sophomore year.

Subject to the above restrictions a student may take the six hours required wholly in French, wholly in German, or three hours in each, choosing any courses for which he is fitted by his previous work.

*Mathematics.* Freshman year. Four hours.

Those who present Solid and Spherical Geometry and Plane Trigonometry must take Mathematics five hours per week during the Freshman year. This includes the courses now numbered Mathematics 4, 5, 6, 7, 9, 10, and 12. Students taking these courses will be enabled to begin work in the sciences requiring Mathematics one year earlier than other students.

*English (elementary).* Freshman year. Three hours.

*English (argumentation).* Junior year. One hour.

*European History.* Three hours.

First and second terms either in the Sophomore or Junior year.

*English Literature.* Three hours.

Sophomore, Junior or Senior year.

*Physical or Natural Science*, a continuous course throughout the year. Three hours.

Freshman, Sophomore or Junior year.

*Political Science, Social Science, and Political Economy.* Three hours.

Sophomore, Junior or Senior year.

*Philosophy.* Three hours.

Sophomore, Junior, or Senior year.

## FRESHMAN YEAR

### I. Required Studies.

Latin 1, 2, 3, or Greek A, B, C or 1, 2, 3. Three hours.

French A, B, C or 1, 2, 3, or } Three hours.

German 1, 2, 3 or 24, 25, 26. } Three hours.

Mathematics 3, 1, 2. Four hours, or

Mathematics 4, 5, 6, 7, 9, 10, 12. Five hours.

English 1, 2, 3. Three hours.

**II. Elective Studies.** One must be chosen in addition to those taken as required studies.

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French A, B, C. For students presenting no French for admission.

French 1, 2, 3. For students presenting elementary French for admission.

French 4, 5, 6. For students presenting advanced French for admission.

German 1, 2, 3. For students presenting no German for admission.

German 24, 25, 26. For students presenting elementary German for admission.

German 34, 35, 36. For students presenting advanced German for admission.

Greek 47, Latin 48, Indo-European Philology 1, (Greek and Roman Literature and History of Language). For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission (subject to consent of department).

Botany 1, 2, 3. For all students.

Comparative Anatomy 15, 1, 35. For all students.

## SOPHOMORE YEAR

**I.** Required studies which must be completed by the end of the Sophomore year.

That portion of the required work in ancient and modern languages not completed in the Freshman year.

**II.** Other required and elective studies sufficient with studies taken under I. to make fifteen hours per week.

## JUNIOR YEAR

**I.** Required studies which must be completed by the end of the Junior year.

English (argumentation). One hour.

The required History and Physical or Natural Science, if not previously taken.

**II.** Other required and elective studies sufficient with studies taken under I. to make sixteen hours per week.

## SENIOR YEAR

- I. All required studies not previously taken.
- II. Elective studies sufficient with studies taken under I. to make fifteen hours per week.

### CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Candidates are required to take certain studies, as shown in the following tabulation:

*Modern Language.* An amount sufficient with the work presented for admission to complete the elementary course and a year of advanced work in both French and German. A student who is admitted in both advanced French and advanced German is required to continue only one of these languages for one year, three hours per week, in college.

\**Mathematics.* Freshman year. Four or five hours.

*English (elementary).* Freshman year. Three hours.

*English (argumentation).* Junior year. One hour.

*European History.* Three hours.

First and Second Terms either in the Sophomore or Junior year.

*Physical or Natural Science,* a continuous course throughout the year. Three hours.

Freshman, Sophomore or Junior year.

*Philosophy.* Three hours.

Sophomore, Junior or Senior year.

## FRESHMAN YEAR

I. *Required Studies.*

English 1, 2, 3. Three hours.

French A, B, C or 1, 2, 3, or }      Three hours.  
German 1, 2, 3 or 24, 25, 26. }

Mathematics 3, 1, 2. Four hours, or

Mathematics 4, 5, 6, 7, 9, 10, 12. Five hours.

II. *Elective Studies.* Two must be chosen in addition to those taken as required studies.

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

\*Five hours for students presenting Solid and Spherical Geometry and Plane Trigonometry for entrance.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French A, B, C. For students presenting no French for admission.

French 1, 2, 3. For students presenting elementary French for admission.

French 4, 5, 6. For students presenting advanced French for admission.

German 1, 2, 3. For students presenting no German for admission.

German 24, 25, 26. For students presenting elementary German for admission.

German 34, 35, 36. For students presenting advanced German for admission.

Greek 47, Latin 48, Indo-European Philology 1, (Greek and Roman Literature and History of Language.) For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission (subject to consent of department).

Botany 1, 2, 3. For all students.

Anatomy 15, 1, 35. For all students.

Drawing 16, 17, 18. For all students.

### SOPHOMORE YEAR

I. Required studies which must be completed by the end of the Sophomore year.

That portion of the required work in modern language not completed in the Freshman year.

II. Other required and elective studies sufficient with those taken under

I. to make fifteen hours per week.

### JUNIOR YEAR

I. Required studies which must be completed by the end of the Junior year.

English (argumentation). One hour.

The required History and Physical or Natural Science, if not previously taken.

II. Other required and elective studies sufficient with those taken under

I. to make sixteen hours per week.

### SENIOR YEAR

I. All required studies not previously taken.

II. Elective studies sufficient with those taken under I. to make fifteen hours per week.

REGULATIONS UNDER WHICH A STUDENT MAY BE PERMITTED TO TAKE A FIRST DEGREE IN LESS THAN FOUR YEARS.

1. A candidate for a first degree who has passed in the required number of hours of work and all of the required subjects may, at the end of the term in which his work is completed, be excused from further attendance at the University and may receive his degree at the Commencement next following such term.

2. A candidate for a first degree who has maintained a satisfactory standing in his studies may, subject to the consent of the Committee on Admission to Advanced Standing, take work in addition to the regular number of hours provided for in the curriculum of the course which he is pursuing.

3. A candidate for a first degree may receive credit for work done outside of Brown University as follows:—

(a) A candidate for admission to advanced standing who comes from an approved institution of collegiate rank may receive credit, without examination, for work done at such institution provided first, that he present a letter of honorable dismissal from the institution which he last attended, second, that he present a detailed statement of his previous work and his standing therein, signed by the proper official. The amount of credit to be given shall be determined by the Committee on Admission to Advanced Standing.

(b) A candidate for admission to advanced standing may receive credit for any subject included in the curriculum of the course which he proposes to enter, provided first, that he notify in writing the Committee on Admission to Advanced Standing at the time he applies for admission to the University of his intention to present such subject, and second, that he pass an examination in the subject before a date set by said Committee.

(c) A candidate for a first degree may receive credit for work done at the summer school of an approved institution of collegiate rank, provided that the work have the approval of the head of the department concerned at Brown University. The equivalent of the credit for the work given at the institution in question shall be allowed at Brown University, but the total credit for work at summer schools for any one summer shall in no case exceed fifteen (15) term hours.

(d) A candidate for a first degree may with the consent of the head of the department and with the approval of the faculty pursue studies connected with said department during a summer in which he does not attend a summer school, and may receive credit for such studies provided first, that the work be under the supervision of the head of the department concerned, second, that he pass an examination in all the work before

the end of the first term following. The amount of credit for work of this kind shall be determined by the head of the department but the total credit for any one summer shall not exceed nine (9) term hours. No student will be allowed to do summer work in connection with any department of the University until he has presented to the head of the department a registration slip properly filled and signed by the Registrar.

4. If a student at the beginning of his senior year lacks less than forty-five (45) term hours of completing his course he may, for reasons deemed sufficient by the Committee on Admission to Advanced Standing, distribute his work over the year.

5. If a student at the beginning of any term lacks less than fifteen (15) term hours of completing his course he may, for reasons deemed sufficient by the Committee on Admission to Advanced Standing, be excused from taking more than the necessary number of hours.

NOTE:—Paragraphs 4 and 5 are designed to assist students who desire to pursue graduate work during their Senior year (see rules of Committee on Graduate Students) or who for financial or other reasons wish to do work not connected with their college course.

## ANNOUNCEMENT OF COURSES FOR 1903-1904

### I. ANATOMY (COMPARATIVE)

15, 1, 35. *Introductory Course.* Three hours. Through the year. Elective for Undergraduates.

Six hours of attendance. For general students as well as for Freshmen in the A. B. or Ph. B. course who expect to pursue other courses in the department. By means of laboratory work in gross and minute anatomy and physiology, it introduces the student to scientific methods, to the structure and functions of animals, and to the general principles of biology.

Professor GORHAM

3, 4, 34. *Comparative Anatomy of Vertebrates.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors who have passed in 35.

Six hours of attendance. Critical and comparative study of the vertebrate organs, with special reference to the structure of man. In addition to the regular lectures, occasional lectures by physicians and others who have given attention to certain special subjects. A limited number of students are permitted to attend the clinics at the Rhode Island Hospital.

Dr. WILLIAMS

9. *Bacteriology.* Three hours. First Term. Elective for Juniors and Seniors who have passed in 35.

Six hours of attendance. Preparation and microscopic study of bacteria, the preparation of culture media, isolation, systematic study and determination of unknown species, qualitative and quantitative biological examination of water, milk, air and soil; methods of determining pathogenic properties of bacteria; methods of sterilization and disinfection; special work on pathogenic forms.

Professor GORHAM

10. *Histology.* Three hours. Second Term. Elective for Juniors and Seniors who have passed in 9.

Six hours of attendance. Microscopic anatomy of tissues.

Dr. WILLIAMS

38. *Advanced Histology.* Three hours. Third Term. Elective for Juniors and Seniors who have passed in 10.

Six hours of attendance.

Dr. FULTON

NOTE: Students who have passed in 10 may elect this course or 2.

2. *Invertebrate Anatomy.* Three hours. Third Term. Elective for students who have passed in 35.

Six hours of attendance. Laboratory course on the comparative anatomy of the lower animals.

Dr. WILLIAMS

18, 19, 20, 21. *Physiology.* Three hours. Third, First, Second and Third Terms. Elective for Juniors and Seniors who have passed in Chemistry 2.

Six hours of attendance. Third and First terms, chemical physiology—The chemistry of the proteids, carbohydrates and fats; the chemistry of salivary, gastric, pancreatic digestion; blood, bile, and urine. Second and Third terms, physical physiology—The nervous, muscular, circulatory, respiratory, and alimentary systems.

Dr. SULLIVAN

[16, 17, 30. *Anatomy of the Nervous System.* Three hours. Through the year. Elective for Juniors and Seniors who have passed in 35.] Not offered in 1903-04. To be offered in 1904-05.

Six hours of attendance. The gross anatomy and the microscopic structure of the nervous system in vertebrates, especially in man. Phylogeny, embryology and physiology of the nervous system and special nerve-methods in micro-technic.

Professor MEAD

NOTE: This course alternates with 31, 32, 33.

31, 32, 33. *Comparative Embryology.* Three hours. Through the year. Elective for Juniors and Seniors who have passed in 35. Not to be offered in 1904-05.

Six hours of attendance. Laboratory work. Designed to give a general idea of the principles of embryological development and of heredity, illustrating the fertilization and cleavage of the egg, metamorphosis, and organ formation.

Professor MEAD

NOTE: This course alternates with 16, 17, 30.

**For Graduates**

25. *Biological Theories and Biological Problems.* Through the year. Elective for Graduates.

Weekly seminary. A general discussion of biological theories and biological problems.

Professor MEAD

27. *Bacteriological Research.* Through the year. Elective for Graduates.

Laboratory work and seminary.

Professor GORHAM

28. *Advanced Physiology.* Through the year. Elective for Graduates who have sufficient knowledge of chemistry and physiology.

Laboratory work and seminary.

Dr. SULLIVAN

29. *Human Anatomy.* Through the year. Elective for Graduates.

Laboratory instruction. In addition to the course in practical dissection, the students will have an opportunity to attend certain operations at the hospital and to be present at autopsies.

Dr. PERKINS and Dr. PEGRAM

**HOUSEHOLD ECONOMICS**

This course is designed primarily for students of the Women's College. It deals with the fundamental principles which determine the health and disease in the community, household and individual. Lectures and laboratory work. Three hours for two years.

- 1, 2, 3. *General Anatomy, Microscopical Anatomy and Physiology.* Three hours. Through the year. Elective for all students.

Six hours of attendance.

4. *Bacteriology.* Three hours. First Term. Elective for students who have passed in 3.

Six hours of attendance. Parallel with course 9.

Professor GORHAM

5. *Foods.* Three hours. Second Term. Elective for students who have passed in 4.

Six hours of attendance. Compositions, nutritive values of food stuffs and physiology of digestion and secretion.

Dr. SULLIVAN and special lecturers

6. *Hygiene.* Three hours. Third Term. Elective for students who have passed in 5.

Six hours of attendance. Principles of municipal and house sanitation, personal hygiene, and the nature of common diseases. Lectures, visits to public works and hospitals and laboratory work.

Dr. C. V. CHAPIN, Dr. F. T. FULTON, Dr. H. G. PARTRIDGE,

Professor MEAD

## II. ART

Professor POLAND

1. *Ancient Art or Classical Archaeology.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

A general course in the history of ancient art, chiefly Greek. Text-book; lectures illustrated by casts, slides, photographs and engravings; collateral reading.

NOTE: Courses 1, 4 and 6 may be taken independently, but students are advised to elect all three in the above order, in which order they form a consecutive outline of the History of Art. Students are strongly advised to take 1, if possible, before any other course in the History of Art.

4. *Roman, Early Christian and Mediæval Art.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Study of Roman, Romanesque and Gothic art, with some notice of Byzantine, Arabian and Oriental art.

6. *Art of the Renaissance.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

The fifteenth and sixteenth centuries. The effect on art of the dominant motives of the epoch, the development of art in the different countries of Europe, the great masters and their most significant works. Text-book, lectures, lantern views.

NOTE: Courses 7 and 9, described below, follow consecutively after course 6.

14, 15, 16. *Practical Work in Art.* Three hours. Through the year. Elective for students who are taking, or who have passed in Art 1, 4, 6, and who have also passed in Drawing 2, 3, 4.

Six hours of drawing or other practical work, to illustrate the principles of delineation, color and chiaroscuro, and the principles of design in architecture, sculpture and painting, as exemplified in the historic forms of art.

This course will be given at the Rhode Island School of Design.

7, 9. *Modern Art.* Three hours. First and Second Terms. Elective for Juniors, Seniors and Graduates who have passed in 6.

First Term, the seventeenth and eighteenth centuries; Second Term, the nineteenth century. These courses follow consecutively after course 6.

8. *Theory and Criticism of the Fine Arts.* Three hours. Third Term. Elective for students who have passed in any course in Art.

A study of the more important facts and laws of artistic production.

[10. *Seminary in Classical Architecture.* Elective for Graduates.] Not offered in 1903-04.

Critical study; Vitruvius read in the original Latin; discussion of the principles followed by the Greek and Roman architects, and of the influence of Vitruvius in the Renaissance.

NOTE: Courses 10, 11 and 3 are critical courses in classical archaeology, especially useful to those who wish to do advanced work in classical archaeology, philology or history.

[11. *Seminary in Greek and Roman Sculpture.* Elective for Graduates.] Not offered in 1903-04.

[3. *Seminary Study of the Acropolis of Athens.* Elective for Graduates.] Not offered in 1903-04.

Critical reading, in the Greek, of Pausanias' account of the Acropolis of Athens; lectures and illustrations.

[12. *Seminary in Renaissance Art.* Elective for Graduates.] Not offered in 1903-04.

## MUSICAL HISTORY AND THEORY

Professor ASHTON

- 1, 2, 3. *Harmony.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

First Term, the construction and connection of chords, the writing of exercises; Second Term, modulation, non-harmonic notes, harmonization of melodies; Third Term, analysis of harmony in compositions by the best writers, the study of melody, the writing of compositions.

NOTE: Courses 1 to 9 inclusive are sequential and must be taken in order.

- 4, 5, 6. *Counterpoint.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3.

Study of the rules of simple and double counterpoint; constant practice in contrapuntal writing; analysis of works by the best contrapuntal writers.

- [7, 8, 9. *Composition.* Three hours. Through the year. Elective for students who have passed with credit in 4, 5, 6.]  
Not offered in 1903-04.

14. *Musical Introduction.* Three hours. Second Term. Elective for Juniors and Seniors who have not passed in or who are not taking 10, 11, 12.

A general course which considers such of the elements of music and the principles of musical composition as will enable the student to listen to music with intelligent interest and genuine profit.

15. *Music and Musicians of the Nineteenth Century.* Three hours. Third Term. Elective for Juniors and Seniors who have not passed in or who are not taking 10, 11, 12.

A general course to acquaint the student with the life, works and style of Beethoven, Schubert, Schumann, Mendelssohn, Wagner and other famous composers of the nineteenth century.

- [10, 11, 12. *Structure and History of Music.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

Lectures on the history of music from the earliest times down to the present, accompanied by an analysis of representative compositions.

[13. *Sacred Music.* Three hours. Third Term. Elective for Juniors and Seniors. Number of members limited to twelve.] Not offered in 1903-04.

The history of sacred music and a study of music in its application to religious worship. Designed for those who are to be intrusted with the direction of church music.

20, 21, 22. *The Symphony.* Three hours. Through the year. Elective for Graduates.

Study of the evolution of the symphony orchestra and of the works of symphonists from Haydn to Brahms and Tschaikowsky.

### III. ASTRONOMY

1, 2, 6. *General Course.* Three hours. Through the year. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

Fundamental conceptions of the science, methods of professional study, and present state of our knowledge of the heavenly bodies. Young's *Manual of Astronomy*, lectures and abstracts upon assigned topics. Designed as a culture course or as a preparation for technical work.

Professor UPTON

3, 4, 5. *Geodetic Astronomy.* Three hours. Through the year. Required of engineering students. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

The application of astronomy to geodesy; use of the sextant, transit and zenith telescope for determining time, latitude, longitude and azimuth.

Professor SLOCUM

17, 18, 19. *Nautical Astronomy.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors who have passed in Mathematics 1, 2, 3.

The principles of navigation, the methods of determining the position of a ship at sea, together with the use of sextant, compass and chart for determining latitude, longitude, bearings and courses.

Professor SLOCUM

NOTE: Courses 3, 4, 5, and 17, 18, 19, cover in part the same ground and cannot both be taken by the same student, but either can be taken at the same time as the general course 1, 2, 6.

8, 9, 10. *Practical Astronomy.* Three hours. Through the year. Elective for Graduates and for Undergraduates who have shown special aptitude in either 1, 2, 6, or 3, 4, 5.

Advanced study of geodetic applications of astronomy; method of least squares. Doolittle's *Practical Astronomy*, with instrumental observations.

Professor UPTON

14, 15, 16. *Mathematical Astronomy.* Three hours. Through the year. Elective for Graduates.

The mathematical theory of planetary and cometary orbits; micrometer observations and calculation of orbits.

Professor UPTON

**Offered only to Students of the Women's College**

1w. *Meteorology.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

Professor SLOCUM

[2w, 3w. *Physical Geography of the Sea and Land.* Three hours. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.] Not offered in 1903-04.

Professor SLOCUM

## **IV. BIBLICAL LITERATURE AND HISTORY**

### **HEBREW**

1, 2, 3. *Elementary Hebrew.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor FOWLER and Mr. BROWN

16, 17, 18. *Historical Hebrew.* Three hours. Through the year. Elective for students who have completed Hebrew 1, 2, 3.

Reading of the books of Samuel and Kings with special attention to the acquisition of a vocabulary. Review of the grammar.

Professor FOWLER and Mr. BROWN

7, 8, 9. *Hebrew Seminary.* Three hours. Through the year. Elective for Graduates and qualified Undergraduates.

Subject for 1903-04: Wisdom Literature. Critical translation of the wisdom books of the Old Testament and study of the speculative thought of ancient Israel.

Professor FOWLER

NOTE: In succeeding years corresponding courses in the Legal, Prophetic and Psalm Literature of the Old Testament will be offered.

### NEW TESTAMENT LANGUAGE AND LITERATURE

7, 6, 3. *Acts and Pauline Epistles.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

A study of the characteristics of Hellenistic Greek. Translation, analysis of structure and thought, investigation of date and authorship. First Term, Acts. Second Term, Thessalonians and Galatians. Third Term, Corinthians and Romans.

Professor FOWLER

NOTE: Each term may be elected separately.

[5, 1, 2. *Gospels and Epistles.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

Professor FOWLER

### BIBLICAL LITERATURE AND HISTORY IN ENGLISH

[4, 5, 6. *Hebrew History and Literature.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.] Not offered in 1903-04.

First Term, early Semitic history and the beginnings of Hebrew history. Second Term, the United Kingdom. Third Term, the Divided Kingdom.

1, 2, 3. *Jewish and Early Christian History and Literature.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

First Term, the history and literature of the Jewish people between the fall of Jerusalem in 586 and the re-dedication of the Temple in 165 B. C. Second Term, the Jewish and Roman life that constitutes the background of the New Testament, and the Jewish and Christian literature between 165 B. C. and 200 A. D. Third Term, historical study of the Life of Jesus and of the first half century of the Christian church.

Professor FOWLER

NOTE: Each term may be elected separately.

NOTE: Courses 1-6 in the English Bible are designed for general students as well as for those intending special Biblical work. They are not repeated in successive years, but form a two-years' consecutive course, giving a comprehensive view of the entire field of Biblical history. The sources, Biblical and monumental, for each epoch are studied; then the political, social and religious life and development. The date and authorship of books and the various other questions of literary history for each period are examined, and the teachings of the several documents are drawn out and formulated.

- 7, 8, 9. *English Bible Seminary.* Three hours. Through the year. Elective for Graduates, and qualified Juniors and Seniors.

Subject for 1903-04: The Literary History of Israel. Investigation of the growth of literature in ancient Israel in relation to the political, social, and religious development of the people.

Professor FOWLER

*Biblical Research Club.* A Biblical Research Club, including graduate and undergraduate students, meets once a month for the review of new books and current literature, reading of papers and free discussion. Arrangements are also made for special addresses before the club.

## V. BOTANY

Professor BAILEY and Mr. COLLINS

- 1, 2, 3. *General Morphology, Physiology and Ecology.* Three hours. Through the year. Elective for Undergraduates.

Six hours of attendance. Comparative study of the seed, the seedling and the mature plant; variations due to environment; experiments in plant physiology, etc. Intended especially to train the student to observe and properly interpret the more obvious phenomena of plant life, as well as to furnish the necessary preparation for more advanced work.

Professor BAILEY and Mr. COLLINS

- 4, 5. *Histology and Physiology.* Three hours. First and Second Terms. Elective for Students who have passed in 1, 2, 3.

Six hours of attendance. Structure and physiology of vegetable cells, tissues and organs; embryology; micro-technique.

Mr. COLLINS

14. *Medical Botany.* Three hours. Third Term. Elective for students who have passed in 5.

Five hours of attendance. Systematic study of the more important medical plants and their constituents; location, characteristics and methods of extraction of the common drugs.

Mr. COLLINS

NOTE: 4, 5, 14 offered in 1903-04; alternates with 7, 12, 9.

- [7. *Lower Cryptogams.* Three hours. First Term. Elective for students who have passed in 3.] Not offered in 1903-04.

Six hours of attendance. Comparative study of the structure and development of types of the algae and lower fungi; collection and classification.

Mr. COLLINS.

- [12. *Higher Cryptogams.* Three hours. Second Term. Elective for students who have passed in 7.] Not offered in 1903-04.

Six hours of attendance. Structure, development and classification of the hepaticæ, mosses, ferns, horse-tails and club-mosses.

Mr. COLLINS

- [9. *Mycology.* Three hours. Third Term. Elective for students who have passed the required examinations.] Not offered in 1903-04.

Six hours of attendance. Structure, development, collection preservation and classification of edible, poisonous and other economic fungi; plant diseases.

Mr. COLLINS

NOTE: 7, 12, 9 to be offered in 1904-05 alternates with 4, 5, 14.

## VI. CHEMISTRY

- 1, 2, 3. *Descriptive Chemistry.* Three hours. Through the year. Elective for Undergraduates.

Non-metals; metals, their metallurgy, compounds and practical applications; theoretical chemistry. Lectures with experiments, written exercises, individual laboratory work.

Professor BUCHER and Messrs. PARMENTER, CLARKE and SMITH

4. *Qualitative Analysis.* Three hours. First Term. Elective for Juniors.

Six hours of attendance. A study of the properties of the metallic elements together with their separation from certain of their compounds. Laboratory work, accompanied by recitations in qualitative analysis and in chemical philosophy, and exercises in stoichiometry.

Professor APPLETON and Assistant.

5. *Qualitative Analysis, continued.* Three hours. Second Term. Elective for Juniors.

Six hours of attendance. A study of the principal non-metals and the acids formed by them as well as of the methods of separation and recognition of acids and acid radicles.

Professor APPLETON and Assistant

6. *Quantitative Analysis.* Three hours. Third Term. Elective for Juniors.

Six hours of attendance. Study of the quantitative precipitations and separations of the most important elements and compounds; a somewhat thorough review of the principles upon which quantitative apparatus is constructed, including the theory of the chemical balance, the merits of the different systems of weights and measures, the use of burettes, graduated flasks, etc.; studies in chemical philosophy and stoichiometry continued. Chiefly laboratory work.

Professor APPLETON and ASSISTANT

- 7, 8, 9. *Quantitative Analysis, advanced.* Six hours. Through the year. Elective for Seniors and Graduates who have passed in 1-6.

Twelve hours of attendance. The assaying of metallic ores, analysis of agricultural materials, including commercial fertilizers, the testing of chemicals used in textile establishments, etc.

Professor APPLETON and Assistant

- 10, 11, 12. *Organic Chemistry.* Six hours. Through the year. Elective for Seniors and Graduates who have passed in 1-6.

Lectures, recitations and laboratory work. An extended series of exercises in the preparation and quantitative analysis of organic compounds, so selected as fairly to represent the different branches of this department. First and Second Terms, three lectures and three laboratory periods a week.

Professor BUCHER and Mr. CLARKE

13. *Assaying.* Six hours. Third Term. Elective for Seniors and Graduates who have passed in 1-6.

Twelve hours of attendance.

Professor APPLETON and Assistant

23. *Textile Dyeing.* Six hours. Third Term. Elective for Seniors and Graduates.

Twelve hours of attendance. Bleaching and dyeing of fabrics of cotton, of wool and of silk. Preparation of mordants. Experimental tests of efficiency of dyes, processes, etc.

Professor APPLETON and Assistant

31, 32, 33. *Industrial Chemistry.* One, Two, or Three Terms. Elective for Graduates.

Lectures and laboratory work.

Professor APPLETON

41, 42, 43. *Physical Chemistry.* Three hours. Through the year. Elective for Graduates. Not to be offered in 1904-05.

Lectures and laboratory work.

Professor BUCHER

[51, 52, 53. *Organic Chemistry, advanced course.* Elective for Seniors and Graduates.] Not offered in 1903-04. To be offered in 1904-05.

Professor BUCHER

[61, 62, 63. *Inorganic Chemistry, advanced course.* Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04. To be offered in 1904-05.

Professor BUCHER

71, 72, 73. *Organic Preparations, advanced course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor BUCHER

81, 82, 83. *Inorganic Preparations, advanced course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Professor BUCHER

91, 92, 93. *Research work in Chemistry.* Through the year. Elective for Graduates.

Professor BUCHER

## VII. DRAWING

1. *Elementary Mechanical Drawing.* Four hours. First Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Two hours of recitation and four hours of drawing. Nature care and use of drafting instruments; plane problem construction; theory of orthographic projection; discussion, proof, and graphic solution of problems in descriptive geometry relating to the point, line and plane.

Professor RANDALL and Mr. BROOKS

16. *Elementary Mechanical Drawing.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors, and for Freshmen, candidates for the degree of Bachelor of Philosophy.

Six hours of drawing. Nature care and use of drafting instruments; plane problem construction; elements of orthographic and isometric projection.

Professor RANDALL and Mr. BROOKS

5. *Descriptive Geometry.* Four hours. Second Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering. Elective for students who have passed in 1.

Three hours of recitation and two hours of drawing. Line and surface generation and classification; discussion, proof and graphic solution of problems relating to the determination of planes tangent to surfaces of single and of double curvature; intersections and developments; presentation of principles involved in the solution of engineering problems.

Professor RANDALL

6. *Descriptive Geometry.* Four hours. Third Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering. Elective for students who have passed in 5.

Three hours of recitation and two hours of drawing. Intersections and developments; application of the principles of descriptive geometry in isometric drawing, in shades and shadows and perspective, in machine drawing, and in practical engineering problems.

Professor RANDALL

17. *Descriptive Geometry.* Three hours. Second Term. Elective for Freshmen, candidates for the degree of Bachelor of Philosophy, Sophomores, Juniors and Seniors who have passed in 1 or 16.

Two hours of recitation and two hours of drawing. Theory of orthographic projection; discussion, proof and graphic solution of problems relating to the point, the straight line and the plane. A continuation of 16.

Professor RANDALL

18. *Descriptive Geometry.* Three hours. Third Term. Elective for Freshmen, candidates for the degree of Bachelor of Philosophy, Sophomores, Juniors and Seniors who have passed in 17.

Two hours of recitation and two hours of drawing. Problems relating to the determination of planes tangent to surfaces of single and of double curvature; intersections and developments, including intersection of surfaces by planes, development of single curved surfaces, intersections of single and of double curved surfaces.

Professor RANDALL

7. *Shades and Shadows and Perspective.* Three hours. First Term. Elective for students who have passed in 6 or 18.

Two hours of recitation and two hours of drawing. Application of the principles of descriptive geometry in the solution of problems relating to the shadow of the point, the shadow of the line, the shadow of the surface, the shade and shadow of the solid, to the perspective of the point, the line, the surface, the solid, to the perspective of curves, and to the perspective of shadows.

Professor RANDALL

14. *Shades and Shadows and Perspective, advanced.* Three hours. Elective for students who have passed in 7.

Six hours of drawing. Application of the principles of shades and shadows and perspective in architectural drawing.

Professor RANDALL

8. *Elementary Machine Drawing.* Three hours. Elective for students who have passed in 5, 6, or 17, 18.

Six hours of drawing. Presentation of conventional methods of representing the parts of machines; explanation of machines in detail; sketches, detail and assembly drawings.

Mr. BROOKS

10, 11. *Machine Drawing, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 5, 6 or 17, 18.

One hour of recitation and five hours of drawing. Sketches, detail and assembly drawings of complicated machines. In connection with sketch and detail work, extensive practice in the inspection of drawings is given.

Mr. PHETTEPLACE

12. *Elements of Machine Design.* Three hours. Third Term. Elective for students who have passed in Drawing 10, 11. Six hours of drawing. Design of the simpler mechanisms.

Mr. PHETTEPLACE

27, 28. *Machine Design, advanced.* Three hours. First and Second Terms. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 10, 11 and 12, and in Mechanics 3, 4 and 6.

Six hours of calculation and drawing. Extended problems in design, involving the calculation of the strength of the various parts of machines and structures.

Professor KENERSON and Mr. PHETTEPLACE

15. *Constructive Geometry.* Three hours. Through the year. Elective for students who have passed in 1 or 16.

Six hours of drawing. Derivation, graphical test and proof of original methods of solving plane and solid geometrical problems. Mathematical.

Professor RANDALL and Mr. BROOKS

19. *Mechanical Drawing, practical.* Three hours. Second Term. Elective for students who have passed in 16. Arranged for students desiring to continue their course in drawing without taking the theoretical work of descriptive geometry.

Six hours of drawing. Exercises in intersections and developments; third quadrant projection; sketching and dimensioning; conventional methods of representing machine parts.

Mr. BROOKS

20. *Mechanical Drawing, practical.* Three hours. Third Term. Elective for students who have passed in 19. Arranged for students desiring to continue their course in drawing without taking the theoretical work of descriptive geometry.

Six hours of drawing. Sketching, detailing, and assembling; exercises in reading drawings; architectural drawing, including the drawing of plans, elevations, and the details of building construction.

Mr. BROOKS

21, 22. *Architectural Drawing.* Three hours. Second and Third Terms. Elective for Sophomores, Juniors and Seniors who have passed in Drawing 7.

Six hours of drawing. Principles of architectural design and composition. Working drawings and ordinary office practice. Given at the Rhode Island School of Design.

Professor HOMER of the Rhode Island School of Design

2, 3, 4. *Freehand Drawing.* One hour. Through the year. Elective for all students.

Two hours of drawing. Training of hand and eye by progressive study of models of machine parts, casts of ornamental forms, and still-life objects. Given at the Rhode Island School of Design.

Messrs. TOLMAN, NISBET and BLANCHARD

### VIII. ENGINEERING (CIVIL)

1, 2, 3. *Surveying.* Three hours. Through the year. Elective for students who have passed in Mathematics 1, 2 and 3, and in Drawing 1 to 16.

Usually six hours of field work or drafting. Elementary course in land surveying; use of tape, compass, level and transit; adjustment of instruments. Lectures, recitations, field work and drawing.

Professor HILL and Mr. BLANCHARD

**NOTE:** All courses in this department are required of candidates for the degree of Civil Engineer; all except 4, 25, 26, 27 are elective for other students.

4. *Topographical Drawing.* Three hours. Second Term.

Six hours drafting. Pen and colored topography, conventional signs for maps.

Professor BLANCHARD

8, 8a. *Surveying, advanced.* One hour and three hours. Third Term. Elective for students who have passed in 1 and 2, but 8 and 8a cannot be elected separately.

Topography and hydrography, city surveying; use of stadia, plane table, sextant and barometer; precise base-line measurements with steel tape. Methods as in 1, 2, 3. The field work (8a) is done during the spring recess.

Professors HILL and BLANCHARD

5, 5a, 6, 7. *Railroad Engineering.* Two, four, three and three hours. First, Second and Third Terms. Elective for students who have passed in 3 and 8, but 5 and 5a cannot be elected separately.

Eight hours field work in 5a. Theory, location, construction and economics. Methods as in 1, 2, 3.

Professors HILL and BLANCHARD

10. *Hydraulic Engineering.* Three hours. Second Term. Elective for Juniors and Seniors.

Consideration of water supply mainly from a sanitary standpoint. Lectures, recitations and seminary work.

Professor HILL

11. *Hydraulic Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13 and Mechanics 4.

Supplements the courses in Mechanics 7 and 8, which give the theoretical treatment of the subject. Consideration of water supply mainly from an engineering standpoint; irrigation, pumps, and pumping machinery. Lectures, recitations and seminary work.

Professor HILL

16. *Geodesy.* Three hours. Second Term. Elective for students who have passed in 3 and 8 and Astronomy 4.

One hour recitation and five hours computations. Problems in geodetic surveying. Lectures and computations.

Professor HILL

17. *Sanitary Engineering.* Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.

Sewerage and house drainage. Lectures, recitations and seminary work.

Professor HILL

18. *Roads and Pavements.* Three hours. Third Term. Elective for Sophomores, Juniors and Seniors.

Professor HILL

- [19, 20, 21. *Laboratory Investigations.* Three hours. Through the year. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 6.] Not offered in 1903-04.

Use and adjustment of instruments, testing materials, stereotomy.

Professor HILL

NOTE: For 1903-04 students in Civil Engineering will take Mechanical Engineering 6 and 7 in place of Civil Engineering 19 and 20.

- 25, 26, 27. *Lettering.* One hour. Through the year.

Two hours drafting.

Professor HILL

28. *Framed Structures.* Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 1 or 16.

Calculation of stresses in roofs and bridges by analytical methods. Lectures, recitations and seminary work.

Professor BLANCHARD

29. *Structural Details.* Three hours. First Term. Elective for students who have passed in Mathematics 13, Mechanics 4 and Drawing 1 or 16.

Lectures and computations.

Professor BLANCHARD

30. *Roof Design and Graphic Statics.* Three hours. First Term. Elective for students who have passed in 28, 29.

Six hours drafting. Drawing and computations.

Professor BLANCHARD

31. *Bridge Design.* Six hours. Second Term. Elective for students who have passed in 30.

Twelve hours drafting. Drawing, computations and field excursions. Design of plate girders, riveted and pin-connected trusses, with working drawings.

Professor BLANCHARD

32. *Bridges.* Two hours. Third Term. Elective for students who have passed in 28.

Theory of cantilever, draw, continuous, suspension, and arched structures. Lectures, recitations and seminary work.

Professor BLANCHARD

34. *Mineralogy.* Three hours. Third Term.

Determinative and descriptive mineralogy. Blowpipe and chemical analysis. Lectures on the economic effect of minerals in building-stones.

Professor BLANCHARD

35. *Municipal Improvements.* Three hours. First Term. Elective for Juniors and Seniors.

The economic and social aspects of sewerage, water works, pavements, etc. Offered only if ten or more elect the course.

Professor HILL

- 36, 37. *Masonry Structures.* One hour. Three hours. Second and Third Terms. Elective for students who have passed in Mechanics 6 and Drawing 6.

Third Term, one hour recitation and four hours drafting. Theory and design of masonry and concrete-steel arches, dams, bridge piers, etc. Stereotomy.

Professor BLANCHARD

38. *Foundations.* Two hours. Second Term. Elective for students who have passed in 29.

Professor BLANCHARD

39. *Contracts and Specifications.* One hour. Third Term. Elective for students in Mechanical and Electrical Engineering.

Lectures and discussions on the principles of Common Law as applied to contracts.

Professor BLANCHARD

*Thesis.* A graduation thesis on a professional subject is required of every candidate for the degree of Civil Engineer or Bachelor of Science in Civil Engineering. The thesis must embody either a design or a review of an engineering plant, appliance, process or structure, or the results of an experimental investigation.

## IX. ENGINEERING (MECHANICAL)

9. *Thermodynamics of the Steam Engine.* Three hours. Third Term. Elective for students who have passed in Physics 1, 2, 4 and in Mathematics 12, 13 and 14.

Principles of gases and vapors as applied to the steam engine and other heat engines.

Professor KENERSON

10, 11, 12. *Wood-work.* Three hours. Elective for Sophomores, Juniors and Seniors.

Six hours of attendance. Exercises in carpentry, wood-turning and pattern-making.—The student is first taught the use of the usual hand-tools by a progressive series of exercises, which are varied somewhat to meet individual requirements.—Lathe exercises and face-plate work follow, and then pattern making is begun.—A certain minimum is required, but a student may, if proficient, do additional work as his time will allow.—In connection with pattern-making various machines are used, such as buzz and hand-saws, planer, boring and mortising machines, trimmer, etc.

Mr. CADY

13, 14, 15, 16. *Metal-work.* Three hours. Elective for Sophomores, Juniors and Seniors.

Six hours of attendance. The course begins with exercises in chipping and filing.—The student is then required to construct practice pieces, and parts of complete machines, which make necessary the intelligent use of the engine and speed lathe, milling machine, shaper, planer, surface and universal grinder, drills, etc.—The forging and hardening of tools, case hardening, and hardening and tempering of cutters, etc., are among the exercises required.—Some training is also given in simple press-work of metals.—From the first, students are required to work to gauge, and, as far as possible, all exercises are designed to produce finished pieces of value, which become the property of the student.

Mr. STARK

**NOTE:** All courses in this department are required of candidates for the degree of Bachelor of Science in Mechanical Engineering. Though courses 10 to 16 are all open to Sophomores, Juniors and Seniors, no more than two of them may be counted towards the degree of Bachelor of Arts or Bachelor of Philosophy.

20, 21, 22, 23. *Kinematics.* Three hours. Third, First Second and Third Terms. Elective for students who have passed in Drawing 10, 11.

Each student is required to present a paper before the class completely describing some interesting mechanism.—The study of velocity ratios, rolling curves, cams, gearing, linkwork, belting, trains of mechanism and aggregate combinations; of machine tools and the application of the foregoing principles to produce the desired relative motions of parts in such machines.—Recitations, drawing and the solution of problems.

Mr. PHETTEPLACE

[24, 25, 26, 27. *Machine Design.* Three hours. First, Second, Third and Third Terms. Elective for students who have passed in 20, 21, 22, 23 and Mechanics 3, 4, 6.] Not offered in 1903-04.

Six hours of attendance. Principles of mechanics and strength of materials applied to the design of representative types of boilers, engines and various mechanisms.—Solution of problems illustrating the method of designing bolts and nuts, keys, journals and bearings, fly-wheels, valve gears, etc.—Lectures, calculations and drawing.

Mr. PHETTEPLACE

30, 31, 32. *Steam Engineering.* Three hours. First, Second and Third Terms. Elective for students who have passed in or are taking 33, 34, 35.

Practical applications of the principles of thermodynamics and mechanics to the production, transmission, utilization and measurement of power.—Valves and valve gears, and valve setting.—Indicator practice and tests of various forms of steam engines, air compressors, gas engines, etc.—Co-efficient of friction and slip in various forms of rope and belt transmission.—Tests of pumps and water-wheels, and measurement of flow of water and steam.—Standardization of auxiliary apparatus used in making the various tests.—Boiler testing, flue gas and fuel analysis, etc.—Largely a laboratory course.

Professor KENERSON

[33, 34, 35. *Thermodynamics.* Three hours. First, Second and Third Terms. Elective for students who have passed in

Physics 1, 2, 4 and Mathematics 12, 13, 14 or 41, 42, 43.] Not offered in 1903-04.

Principles of gases and vapors as applied to the steam, gas and other heat engines, air-compressor, refrigerating apparatus, etc.—Discussion of the energy of fuel and the utilization of such energy for power purposes by means of various media.—Laws of the relation of variations of pressure, temperature and volume of such media.—Design of proper cylinders for producing a desired amount of power.—Principles of the injector and ejector.

Professor KENERSON

40, 41. *Materials of Engineering.* Three hours. First and Second Terms. Elective for students who have passed in Mechanics 3, 4, 6.

Study of the sources, manufacture and properties of the important materials used in engineering.—Laboratory tests to determine the behavior of materials when subjected to tensile, compressive and torsional stresses.—Mixing and testing of cements and mortars.—Preparation and examination of sections for the microscopical study of the structure of metals and alloys.

Professor KENERSON and Mr. PHETTEPLACE

42. *Power Plant Engineering.* Three hours. Third Term. Elective for students who have passed in 30, 31, 32, 40, 41.

Discussion of the relation and co-ordination of various parts of the complete Power Plant.—Management and methods of determining efficiency.—Selection of best equipment for solution of various engineering problems from manufacturers catalogues and actual inspection.—Lectures, recitations, tests and tours of inspection.

Professor KENERSON

43. *Advanced Engineering Laboratory.* Three hours. First Term. Not offered in 1903-04.

Professor KENERSON

*Thesis.* A graduation thesis is required of all students who are candidates for the degree of Bachelor of Science in Mechanical Engineering. It may be based either on extended independent study, on original experiments by the student, or on an original design of some complicated machine. In any case it must exhibit satisfactory ability in the student as an engineer.

## MECHANICS

Professor CLARKE

- 3, 4, 6.** *Mechanics of Solids.* Three hours. Through the year. Elective for students who have passed in Mathematics 9, 10 and 12, and who are taking Mathematics 13.

Statics; dynamics, including rectilinear and curvilinear motion, virtual velocity, moment of inertia, work, energy, and power, friction; strength of materials, including tension, compression, shearing, torsion, flexure, arches and methods of graphical solution of problems.

- 7, 8.** *Mechanics of Fluids.* Three hours. First and Second Terms. Elective for students who have passed in 3, 4, 6.

Hydrostatics of liquids, including pressure of liquids in tanks and reservoirs, earth pressure and retaining walls, immersion and flotation; hydrodynamics, including steady flow, impulse and resistance.

**NOTE:** Courses 3, 4, 6, and 7, 8 cover essentially the same ground as Church's *Mechanics of Engineering*. supplemented by a large number of original problems illustrative of the principles under the different conditions which arise in their application.

## X. ENGLISH LITERATURE AND LANGUAGE

**NOTE:** Credit for entrance English is a prerequisite to admission to any English course. This rule applies to special students as well as to candidates for a degree.

The second term of a course is not open to students who have not taken the first term of the course, nor the third term to those who have not taken both the first and the second term of the course.

Attention is called to the fact that three courses in literature (16, 17, 18; 49, 50, 51; 52, 53, 54) are now open to Sophomores, Juniors and Seniors with no prerequisite except entrance English, and that the literary course in Shakspere (67, 68, 69) is similarly open to Juniors and Seniors. Sophomores, however, will not be allowed to elect more than one course in literature; thus if a Sophomore elect 16, 17, 18, he cannot also take 49, 50, 51, and *vice versa*.

The new requirement, which goes into effect with the present Sophomore class, that candidates for the degree of A. B. must take one course in English literature, can be met by taking any one of the four courses designated above.

Students who intend to take only one course in English literature in college are advised to select 16, 17, 18; but those who intend to

take more than one will do well to begin at once with some of the other courses. Those who purpose to become teachers of English are strongly urged to take the course in advanced composition, the courses in Old English and Chaucer, and at least two literary courses.

**1, 2, 3. Rhetoric and Composition.** Three hours. Through the year. Required of all Freshmen.

Professors DAMON, BENEDICT and HUNTINGTON, Messrs. LATHAM, HERSEY, HASTINGS and PHILLIPS

**4, 5, 6. Argumentative Composition.** One hour. Through the year. Required of Juniors, candidates for the degree of Bachelor of Arts or Bachelor of Philosophy.

The class will meet twice a week at first, but the total number of meetings will not exceed the usual number in a one-hour course.

Professors HUNTINGTON, BENEDICT, Messrs. LATHAM, HERSEY and PHILLIPS

NOTE: Credit for courses 2, 3 is a prerequisite to 4, 5, 6.

**7, 8, 9. English Composition, advanced.** Three hours. Through the year. Elective for a limited number of Undergraduates who have passed in 1, 2, 3.

Professor DAMON

**11, 12. Debate.** Three hours. Second and Third Terms. Elective for a limited number of Juniors and Seniors who have passed in at least one term of argumentation.

Each student is expected to take part, as a principal disputant, in three debates each term. The class will meet once or twice a week, according to the number of members.

Juniors may substitute 11 for 5, 6.

Professor HUNTINGTON, with the co-operation of the Professors of Political Economy, Social and Political Science, History and Public Speaking.

**13, 14, 15. Public Speaking.** Three hours. Through the year. Elective for all Undergraduates.

General theory, vocal interpretation of literature, extempore speaking and original written orations. During the first and second terms one extra hour a week will be required for practice work.

Professor CROSBY

76. *Public Speaking, advanced course.* One hour. First Term. Elective, with consent of the instructor, for a limited number of Seniors.

Bible and Hymn Reading. Liturgic Expression. Discussion of cause and remedy of ministerial sore throat. Careful attention given to proper voice production, and to lyric, dramatic, and epic thinking and expression.

Professor CROSBY

**NOTE:** Only those who can give a fair amount of time to practice work and to preparation of lessons are advised to elect the course.

16, 17, 18. *English Literature, introductory.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

The course is designed to cultivate an intelligent appreciation of the greater poets and prose writers, and to give a general knowledge of the history of English literature.

Professor BRONSON

19, 20, 21. *Old English.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

The essentials of Anglo-Saxon grammar. Prose selections. Béowulf.

Professor POTTER

[25, 26, 27. *Chaucer.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

In the first and second terms the work will be mainly linguistic, aiming to enable the student to read Chaucer intelligently. The third term will be devoted to somewhat rapid reading in Chaucer, Langland and Gower, and to the study of Chaucer's art as poet and metrist, and of his influence on English poetry.

Professor POTTER

**NOTE:** Advanced courses in Old English, Middle English and Historical Grammar will be offered by Professor Potter according to the needs of qualified students.

[31, 32, 33. *English Literature, exclusive of the Drama, from 1400 to 1600.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.] Not offered in 1903-04.

Mediæval literary forms and the transition to the modern period: romance, ballad, allegory, satire, miracle-play, the beginning of prose, Elizabethan novels and lyrics.

Professor BENEDICT

37, 38, 39. *English Drama from the Miracle Plays to the Closing of the Theatre.* Three hours. Through the year. Elective for those who have passed in 16, 17, 18. Not to be offered in 1904-05.

The drama as a literary type and its history in England from the Scripture Cycles down to 1642. Representative specimens of the early drama and the principal works of Lyly, Greene, Peele, Marlowe, Shakspere, Dekker, Ben Jonson, Heywood, Beaumont and Fletcher, Middleton, Webster, and others will be read and discussed.

Professor POTTER

[40, 41, 42. *Shakspere.* Three hours. Through the year. Elective for Juniors and Seniors.] Not offered in 1903-04.

The aim of the course is to develop the power to read Shakspere with intelligent appreciation. A small number of plays will be studied carefully with special attention to exact interpretation and to those peculiarities of language in which Shaksperian usage differs from our own.

Professor POTTER

67, 68, 69. *Shakspere.* Three hours. Through the year. Elective for Juniors and Seniors.

A literary course, intended for purposes of general culture. All the plays will be read, and the greater plays will be studied as to style, sources and structure of plot, character-portrayal, and *motif*. As an aid to the broader appreciation of Shakspere, some attention will be paid to the history of the English drama.

Professor CROSBY

34, 35, 36. *English Literature, exclusive of the Drama, from 1600 to 1660.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18. Not to be offered in 1904-05.

The course will centre in Milton.

Professor BRONSON

[46, 47, 48. *English Literature from 1660 to 1798.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.] Not offered in 1903-04.

Dryden, Bunyan, Swift, Addison, Pope, Thomson, Defoe, Richardson, Fielding, Smollett, Sterne, Gray, Collins, Johnson, Goldsmith, Cowper, Sheridan, Burke, Burns and Blake, with some attention to lesser writers. Lectures on the life of the times, the Restoration drama, the development of the essay and the novel, and the beginnings of romanticism. Special papers on special topics.

Professor BRONSON

49, 50, 51. *English Literature from 1798 to 1832.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

Wordsworth, Coleridge, Byron, Shelley, Keats, Hazlitt, Lamb, DeQuincey, Jane Austen and Scott.

Professor BENEDICT

52, 53, 54. *English Literature from 1832 to 1892.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

A survey course, involving considerable reading in Dickens, Thackeray, George Eliot, Carlyle, Ruskin, Newman, Pater, Tennyson, Browning, Arnold and others, with lectures and discussions.

Professor POTTER

[55, 56, 57. *English Literature from 1832, the Poets.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.] Not offered in 1903-04.

First and Second Terms, Tennyson and Browning; Third Term, Mrs. Browning, Arnold, Swinburne, Rossetti, Morris and others.

Professor CROSBY

61, 62, 63. *American Literature.* Three hours. Through the year. Elective for students who have passed in 16, 17, 18.

The colonial and national periods of American literature, and a comparative view of American and English literature during three centuries; with occasional lectures on literary criticism, as an assistance in making weekly reports on required reading.

Professor SEARS

64, 65, 66. *Seminary in English Literature.* Three hours. Through the year. Elective for Graduates, and for Seniors who have passed with credit in two or more courses in English literature. Number of members limited to ten.

Subject in 1903-04: The historical development of English verse and of English prose style.

Professor BRONSON

73, 74, 75. *Methods of Teaching English.* One hour. Through the year. Elective for Seniors and Graduates who intend to teach English.

Discussion of methods. Exercises in criticism. Special Reports.

Professor DAMON (First and Second Terms).

Professor BRONSON (Third Term).

## XI. GERMANIC LANGUAGES AND LITERATURES

### GERMAN

1, 2, 3. *Introductory Course.* Three hours. Through the year. Required of all students not presenting German for admission.

Reading from the first; grammar; composition; dictation; sight reading. Selections in prose and poetry from standard authors.

Messrs. NORRIS, ASHLEY and WESTCOTT

24, 25, 26. *Intermediate Course.* Three hours. Through the year. Required of all Freshmen presenting elementary German for admission.

Selected works of classical and modern authors. Study of syntax based upon the text.

Mr. NORRIS

4, 6, 8. *The Drama of the Classic Period.* Three hours. Through the year. Elective for students who have passed in 1, 2, 3.

Lessing, Schiller, Goethe. Two dramas of each author. Recommended to the general student of German. An introduction to the best literature, the linguistic side of the study being also kept in sight.

Professor JONAS

5, 7, 9. *Modern Prose.* Three hours. Through the year.  
Elective for students who have passed in 1, 2, 3.

Varies in details from year to year; presents representative pieces of the best nineteenth century authors in history, biography, legend and fiction. Valuable for students using German sources in other subjects. Sight reading a prominent feature. Parallel to 4, 6, 8.

Professor JONAS

34, 35, 36. *Advanced Course in Standard Authors.* Three hours. Through the year. Elective for students who have passed in 24, 25, 26 and for those presenting advanced German for admission.

Selections from the dramas of Lessing, Schiller and Goethe. Schiller's *Geschichte des Dreissigjährigen Kriegs*, Goethe's *Dichtung und Wahrheit*, etc.

Mr. NORRIS

40, 41, 42. *Composition.* One hour. Through the year.  
Elective only for students pursuing the regular courses of the second or third year in German, and for those who have passed in 48.

Most appropriately taken in connection with courses 4, 6, 8 or 5, 7, 9. Hours for conversation are appointed.

Professor JONAS

[43, 44, 45. *Advanced Composition.* One hour. Through the year. Elective for students who have passed in 42 and who are pursuing or have completed third year courses.] Not offered in 1903-04.

Professor JONAS

[46, 47, 48. *German Masterpieces I.* Three hours. Through the year. Elective for students who have passed in 8 or 36.] Not offered in 1903-04. To be offered in 1904-05.

Goethe's *Faust*, Parts I. and II., with a glance at recent dramas of kindred interest. With 49, 50, 51 presents the productions of the great German writers which deal with important psychological and moral problems.

Professor CROWELL

49, 50, 51. *German Masterpieces II.* Three hours. Through the year. Elective for students who have passed in 8 or 36. Not to be offered in 1904-05.

Wolfram von Eschenbach's *Parzival*, Goethe's *Egmont*, Schiller's *Wallenstein*, Lessing's *Nathan der Weise*.

Professor CROWELL

16, 17, 18. *German Literature.* Three hours. Through the year. Elective for students who have passed in 36, 48 or 51.

The principal literary movements in Germany from the earliest times to the present. Lectures, reports on assigned topics, extended reading. Subject for 1903-04: German literature from the fourth to the eighteenth century. Part of a three years course in literature.

Professor JONAS

10, 11, 12. *Middle High German.* Three hours. Through the year. Elective for students who have passed in 18, 48 or 51. Not to be offered in 1904-05.

Paul's *Mittelhochdeutsche Grammatik*. *Das Nibelungenlied* Hartmann von Aue's *Der arme Heinrich*, Wolfram von Eschenbach's *Parzival*, Lyrics of Walther von der Vogelweide.

Professor CROWELL

28, 29, 30. *Germanic Mythology.* One hour. Through the year. Elective for Juniors, Seniors and Graduates. Not to be offered in 1904-05.

Germanic beliefs and superstitions as to the soul, spirits, demons, and ancient gods. Discussions based on E. Mogk's *Germanische Mythologie*.

[31, 32, 33. *Germanic Philology.* One hour through the year. Elective for graduates.] Not offered in 1903-04. To be offered in 1904-05.

Professor CROWELL

[52, 53, 54. *German Poetry.* Three hours. Through the year. Elective for students who have passed in 48 or 51.] Not offered in 1903-04.

Comparative study of representative poems. First Term, epics; Second Term, lyrics; Third Term, ballads.

Professor JONAS

[61, 62, 63. *Research in German Literature.* Three hours. Through the year. Elective for students who have passed in 18 or 48 or 51.] Not offered in 1903-04.

Six hours of attendance in the Seminary Library. Investigation of problems specially assigned; themes and reports.

Professor CROWELL

### OLD NORSE

1, 2, 3. Two hours. Through the year. Elective for Graduates. Not to be offered in 1904-05.

Holthausen's *Altisländisches Elementarbuch*, Wilken's *Prosaische Edda*, *Die Lieder der Edda*, Ed. Sijmons and Gering. Students electing Old Norse should also take Germanic Mythology.

Professor CROWELL

### GOTHIC

[1, 2, 3. Two hours. Through the year. Elective for Graduates.] Not offered in 1903-04. To be offered in 1904-05.

Professor CROWELL

## XII. GREEK LITERATURE AND HISTORY

A, B, C. *Elementary.* Three hours. Through the year.

For the benefit of those who have not taken Greek before entering college. Aims to cover, with mature students, as much as possible of the entrance requirements in Greek. Such students should be able to make sufficient progress during the academic year in reading Xenophon to be able, by private study during the following long vacation, to complete four books of the Anabasis before the beginning of the next academic year. They may then take up with the Freshman class the reading of the regular prose Greek, and, by additional study, complete before the following spring term the entrance requirements in Homer, and thus be enabled to continue with the Freshman class in Homer also.

1, *Lysias.* Three hours. First Term. Elective for students who presented elementary and advanced Greek for entrance, or who have taken Greek A, B, C and the additional work indicated above.

Lysias, select orations and practice in sight reading.

Professors MANATT and ALLINSON

2. *Plato.* Three hours. Second Term. Elective for students who have taken Greek 1 or its equivalent.

Plato's *Apology* and *Crito*, with other selections for sight reading.  
Professors MANATT and ALLINSON

3. *Homer.* Three hours. Third Term. Elective for students who have taken Greek 1 and 2 or equivalents.

The *Odyssey*, four books, rapid reading of other books; lectures on the life of the Heroic Age as revealed in the poems and illustrated by recent archæological research.

Professors MANATT and ALLINSON

- [46. *Greek Life.* Three hours. First Term. Elective for Freshmen and Sophomores.] Not offered in 1903-04.

A study of the private and public life of the Greeks in the light of their literature and monuments. Syllabus, lectures and prescribed reading, with frequent reports, written tests and a thesis. No knowledge of Greek or Latin required. The course is continued in the Second and Third Terms as Latin 46, 47. The three terms together constitute the course called History of Greek and Roman Life and Institutions.

Professor MANATT

47. *Greek Literature.* Three hours. First Term. Elective for Freshmen and Sophomores.

A brief history of the literature of the Greeks from Homer to Theocritus, together with study of the masterpieces in the best English translations. No knowledge of Greek or Latin required.

Professor MANATT

NOTE: This course is continued in the second and third term as Latin 48, Indo-European Philology 1. The three terms together constitute the course in Greek and Roman Literature and History of Language, and take the place of Greek 46, Latin 46, 47.

4. *Greek Lyric Poets.* Three hours. First Term. Elective for Sophomores.

The chief remains of Greek lyric poetry from Alkman to Timotheos (not including Pindar) will be read.

Professor MANATT

6. *Dramatic Poets.* Three hours. Second Term. Elective for Sophomores.

Lectures on the Greek drama. The *Prometheus of Æschylus*, *The Clouds of Aristophanes*.

Professor ALLINSON

5. *Lucian.* Three hours. Third Term. Elective for Sophomores.

Professor ALLINSON

- [7, 8, 9. *Historians.* Three hours. Through the year. Elective for Juniors, and Seniors who have completed 1-6 or equivalent work.] Not offered in 1903-04.

Professor MANATT

- [10. *Isæus.* Three hours. First Term. Elective for students who have completed 1-6 or equivalent work]. Not offered in 1903-04.

Professor MANATT

- [11. *Demosthenes.* Three hours. First Term. Elective for Graduates.] Not offered in 1903-04.

Private speeches, selected to illustrate the workings of Athenian institutions.

Professor MANATT

- [12. *Demosthenes.* Three hours. Second Term. Elective for Juniors and Seniors.] Not offered in 1903-04.

Speeches on the Crown; study of the Macedonian period and of Athenian political life.

Professor MANATT

- [13, 14, 15. *Homer.* Three hours. Through the year. Elective for Juniors and Seniors.] Not offered in 1903-04.

The *Odyssey*, portions of the *Iliad* and the *Hymns* in the original, the remainder of the poems in translation.

Professor MANATT

- [16. *Plato and Æschylus.* Three hours. First Term. Elective for Juniors and Seniors.] Not offered in 1903-04.

*Republic*, book x; selections from books i-ix.

*Agamemnon*

Professor ALLINSON

45. *The Drama.* Three hours. First Term. Elective for Juniors and Seniors.

The *Medea* of Euripides and the *Frogs* of Aristophanes; with rapid reading of one play of Æschylus for literary criticism.

Professor ALLINSON

17. *Homer.* Three hours. Second Term. Elective for Juniors and Seniors.

Advanced course in the Iliad intended to serve as an introduction to prehistoric archæology and a preparation for teaching Homer. It covers the ground of the Foster Premium examination.

Professor MANATT

18. *Pindar and Bacchylides.* Three Hours. Third Term. Elective for Juniors and Seniors.

Professor MANATT

- 23, 24. *Modern Greek.* One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Professor MANATT

- [28. *Lucian.* Three hours. First Term. Elective for Juniors and Seniors.] Not offered in 1903-04.

Professor ALLINSON

- [44. *Homer.* Three hours. Third Term. Elective for Juniors and Seniors.] Not offered in 1903-04.

Professor MANATT

- 43, 47. *Greek Composition.* One hour. Second and Third Terms. Elective for Sophomores, Juniors and Seniors.

Professor ALLINSON

- [25, 26. *Thucydides.* One two-hour session weekly. First and Second Terms. Elective for Graduates and approved Seniors.] Not offered in 1903-04.

Professor MANATT

- [32. *Attic Orators.* Two hours. First Term. Elective for Graduates and approved Seniors.] Not offered in 1903-04.

Isæus. Greek historical inscriptions.

Professor MANATT

- 34, 35, 36. *Greek Seminary.* One two-hour session weekly. Through the year. Elective for Graduates and approved Seniors.

First Term, (a) *Pindar and Timotheos.*

Second Term, (b) *Euripides.*

Third Term, (a) *Bacchylides and Herondas.*

Professor MANATT (a) and Professor ALLINSON (b).

[41, 42. *Homer and Mycenæan Archaeology.* Two hours. First and Second Terms. Elective for Graduates and approved Seniors.] Not offered in 1903-04.

Professor MANATT

### XIII. HISTORY

#### EUROPEAN HISTORY

1. *General Mediæval History of Europe.* Three hours. First Term. Required of Juniors who are candidates for the degree of Bachelor of Arts or Bachelor of Philosophy.

Professor MUNRO [This year Professor MACDONALD]

2. *General Modern History of Europe.* Three hours. Second Term. Required of Juniors who are candidates for the degree of Bachelor of Arts or Bachelor of Philosophy.

Professor MUNRO [This year Professor MACDONALD]

NOTE: Courses 1 and 2 give a general survey of the history of western Europe from the time of the barbarian invasions to the close of the Napoleonic wars. The work is based upon a narrative text-book, supplemented by lectures, frequent written tests, and written reports and abstracts on assigned reading and topics for special investigation. The elective courses in History are open to those only who have taken or are taking Courses 1 and 2 or their equivalent.

[ 18. *Spanish History.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

Professor MUNRO

[15. *Islam and the Crusades.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

Professor MUNRO

11. *The Period of the Renaissance.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Professor MUNRO [This year Dr. JONES]

3. *The Period of the Reformation.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Professor MUNRO [This year Dr. JONES]

16. *The French Revolution.* Three hours. Third Term.  
Elective for Juniors, Seniors and Graduates.

Professor MUNRO [This year Dr. JONES]

40. *European History since 1815.* Three hours. Third Term.  
Elective for Juniors, Seniors and Graduates.

Professor MUNRO [This year Professor MACDONALD]

[*Seminary in European History.*] Not offered in 1903-04.

### ENGLISH AND AMERICAN HISTORY

- 19, 20, 21. *English Constitutional and Political History to 1689.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Special attention given to the formation of the English constitution, the establishment and growth of the church, the relations with Scotland and Ireland, the Reformation, and the Puritan revolution.

Professor MACDONALD [This year Dr. JONES]

- [22, 23, 24. *English Constitutional and Political History since 1689.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

Professor MACDONALD

Courses 19, 20, 21 and 22, 23, 24 are offered in alternate years.

- [25, 26, 27. *American History to 1787.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.] Not offered in 1903-04.

Professor MACDONALD

- 28, 29, 30. *Constitutional and Political History of the United States since 1787.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

This course deals particularly with the organization of the national government and its administrative development, slavery, the extension of national territory, the bank controversy, the Civil War, and the reconstruction period.

Professor MACDONALD

Courses 25, 26, 27 and 28, 29, 30 are offered in alternate years.

34, 35, 36. *Research Course in English History.* Three hours. (one hour of class-room attendance.) Through the year. Elective for Graduates and qualified Seniors.

The subjects for 1903-04 are: First Term, Parliamentary reform in the nineteenth century; Second and Third Terms, the relations between England and France during the French Revolution.

Professor MACDONALD and Dr. JONES

37, 38, 39. *Research Course in American History.* Three hours. (one hour of class-room attendance.) Through the year. Elective for Graduates and qualified Seniors.

The subjects for 1903-04 are: First Term, English administrative control of the colonies to 1763; Second Term, Selected topics in the internal history of the colonies between 1689 and 1763.

Professor MACDONALD

[31, 32, 33. *Principles of Historical Criticism and Research.* One hour. Through the year. Elective for Graduates.] Not offered in 1903-04.

Professor MACDONALD

#### XIV. MATHEMATICS

3. *Algebra.* Four hours. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who do not present Solid Geometry and Plane Trigonometry for admission.

Professors CLARKE, DAVIS, MANNING and SLOCUM, Messrs. CURRIER WINSLOW and CORNELL

1. *Geometry, Solid and Spherical.* Four hours. Second Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who do not present Solid Geometry and Plane Trigonometry for admission.

Professors CLARKE, DAVIS and MANNING, Messrs. CURRIER, PACKARD and CORNELL

2. *Trigonometry.* Four hours. Third Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who do not present Solid Geometry and Plane Trigonometry for admission.

Professors CLARKE and MANNING, Messrs. CURRIER, PACKARD, WINSLOW and CORNELL

4. *Spherical Trigonometry.* One hour. First Term. Elective for students who have passed in 2 and who have not had Spherical Trigonometry. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Mr. PACKARD

- 5, 6, 7. *Algebra.* One hour. First Term. Two hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Messrs. PACKARD and WINSLOW

8. *Determinants and Theory of Equations.* Three hours. Second Term. Elective for students who have passed in 3 or 5, 6, 7.

Mr. CURRIER

38. *Algebra.* Six hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Messrs. CURRIER and PACKARD

39. *Trigonometry, Plane and Spherical.* Six hours. Second Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Professor SLOCUM and Mr. CURRIER

40. *Analytic Geometry.* Six hours. Third Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Professors DAVIS and SLOCUM

41. *Differential Calculus.* Five hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Professor DAVIS

42, 43. *Integral Calculus.* Three hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering or Electrical Engineering.

Professor DAVIS

9, 10. *Analytic Geometry.* Three hours. First and Second Terms. Elective for students who have passed in 1, 2 and 3. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Professor DAVIS

[11. *Modern Methods of Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10.] Not offered in 1903-04.

Professor MANNING

30. *Solid Analytic Geometry.* Three hours. Third Term. Elective for students who have passed in 10.

Professor MANNING

12. *Differential Calculus.* Three hours. Third Term. Elective for students who have passed in 10; required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who present Solid Geometry and Plane Trigonometry for admission.

Professor DAVIS

13. *Integral Calculus.* Three hours. First Term. Elective for students who have passed in 12; required of candidates for the degree of Civil Engineer, Mechanical Engineer or Bachelor of Science in Electrical Engineering.

Professor DAVIS

14. *Applications of the Differential Calculus.* Three hours. Second Term. Elective for students who have passed in 12 and 13; required of candidates for the degree of Civil Engineer, Mechanical Engineer or Bachelor of Science in Electrical Engineering.

Professor DAVIS

31. *Applications of the Integral Calculus.* Three hours. Third Term. Elective for students who have passed in 13; required of candidates for the degree of Civil Engineer or Bachelor of Science in Electrical Engineering.

Mr. PACKARD

15, 16, 17. *Differential Equations.* Three hours. Through the year. Elective for students who have passed in 13. 15 and 16 are required of candidates for the degree of Bachelor of Science in Electrical Engineering.

Professor MANNING

18, 19, 20. *General Theory of Curves and Surfaces.* Three hours. Through the year. Elective for Graduates and candidates for the degree of Bachelor of Science who have passed in 16 and 30.

Professor MANNING

[21, 22, 23. *Theory of Functions.* Three hours. Through the year. Elective for graduates, for approved Seniors and for candidates for the degree of Bachelor of Science who have passed in 16.] Not offered in 1903-04.

Professor MANNING

24, 25, 26. *Differential Equations, advanced.* Three hours. Through the year. Elective for Graduates who have passed in 23.

Professor MANNING

[27, 28, 29. *Advanced Algebra.* Three hours. Through the year. Elective for Graduates and for approved Seniors.] Not offered in 1903-04.

Including substitutions and the Galois theory of equations.

Professor MANNING

[32, 33, 34. *Quaternions, Non-Euclidean Geometry and Hyper-Space.* Three hours. Through the year. Elective for Graduates and for approved Seniors.] Not offered in 1903-04

Professor MANNING

Two or three of the courses 18-34 are offered each year according to the requirements of the students. For those who have taken them all, other courses can usually be arranged.

**NOTE:** The mathematical courses should be taken in the following order: 3, 1, 2, 9, 10, 12, 13, 14, 31, 15, 16, 17. Courses 8, 11 and 30 are extra courses and can be taken any time after the Freshman year. Courses 38, 39, 40, 41, 42, 43 are designed for students who are taking or who intend to take engineering courses. Courses 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32, 33, 34 are designed for Graduates.

## XV. PHILOLOGY (INDO-EUROPEAN)

Professor ALLINSON

1. *General Introduction to the study of Language.* Three hours. Third Term. Elective for Freshmen and Sophomores.

Outline of the history of language. The Indo-European family. Adapted for students of ancient or modern languages.

This course is a continuation of Greek 47, Latin 48. The three terms together constitute the course in Greek and Roman Literature and History of Language and take the place of Greek 46, Latin 46, 47.

- 4, 5, 6. *Sanskrit, elementary.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Whitney's *Grammar*, Lanman's *Reader*. Selections from the *Vedic Hymns*.

7. *Seminary in Comparative Philology.* One two-hour session weekly. Third Term. Elective for Graduates and qualified Seniors.

Intended for advanced students in Greek and Latin.

- [10, 11, 12. *Sanskrit, advanced.* One hour. Through the year. Elective for students who have passed in 4, 5, 6 or an equivalent.] Not offered in 1903-04.

*Vedic Hymns* and other selections.

## XVI. PHILOSOPHY PHILOSOPHY AND PSYCHOLOGY

**NOTE:** Some one complete course in this department is required of every candidate for the degree of Bachelor of Arts or Bachelor of Philosophy. By a complete course is understood all that is grouped together as a three-hour course under a single name in the accompanying announcements, provided it consists of a year's work. The courses in Education, however, cannot be taken to satisfy this requirement.

19, 27, 43. *Logic.* Three hours. Through the year. Elective for Sophomores, Juniors and Seniors.

A study of the aims, methods and limitations of human thinking; a preparation for work in the sciences and in philosophy. First Term, general introduction and formal logic; Second Term, an examination of the principles and methods of the natural sciences; Third Term, a statement of the relations of science to philosophy, giving the philosophical interpretation and criticism of the results of science.

Professor MEIKLEJOHN

2, 3, 4. *Psychology, introductory course.* Three hours. Through the year. Elective for Juniors.

The main facts and laws of mental life; particular attention to their arrangement in a thorough and comprehensive scientific system, also to their philosophical bearing. The course is thus of value not only because of the immense importance of a knowledge of mental law for practical life, but also as a transition from the special sciences to philosophy.

Professor DELABARRE

20, 21, 22. *Psychology, advanced course.* Three hours. Through the year. Elective for Seniors and Graduates.

A seminary for the discussion of important and interesting questions in psychology. First Term, the fundamental principles of psychology; Second Term, abnormal and unusual states of consciousness; Third Term, subject undetermined.

Professor DELABARRE

29, 30, 31. *Experimental Psychology, introductory laboratory course.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have taken or are taking 2, 3, 4.

Six hours of attendance. Description of the main lines and results of experimental research; demonstration of many of them by the instructor or the class; training in the use of apparatus and in careful scientific observation and measurement.

Professor DELABARRE and Mr. HALL

39, 40, 41. *Experimental Psychology, advanced and original laboratory work.* Through the year. Elective for students who have taken 29, 30, 31.

This course may be taken for any number of hours up to six in the case of Undergraduates, or more in the case of graduates, with double the number of hours of attendance. The problems investigated will vary from year to year according to the interests of instructor and students, and the course may therefore be taken two or more years in succession. The aim is to make original contributions to scientific knowledge in psychology and to publish the results.

Professor DELABARRE and Mr. HALL

8, 9, 10. *History of Philosophy.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

First Term, Greek philosophy; Second Term, mediæval and early modern philosophy; Third Term, recent and contemporary philosophy. The successive philosophical systems in their dialectical development and mutual relations; treatment not merely analytic and historical, but synthetic and constructive as well.

Professor EVERETT [This year Professor COLVIN]

5, 23. *Theoretical Ethics.* Three hours. First and Second Terms. Elective for Seniors and Graduates.

Intended to aid in mastering the fundamental problems of life and character. First Term, a discussion of the nature and relations of ethics and an outline of the history of the chief ethical systems; Second Term, a critical study of the fundamental concepts of ethics with the aim of constructing a tenable theory of conduct.

Professor EVERETT [This year Professor COLVIN]

44. *Practical Ethics.* Three hours. Third Term. Elective for Seniors and Graduates.

Intended to apply ethical theory to the life of the individual, the family and the state. Discussion of current problems, personal, industrial and social, from the ethical standpoint.

President FAUNCE

[26. *Outlines of the History of Religion.* Two hours. Second Term. Elective for Seniors and Graduates.] Not offered in 1903-04.

Professor EVERETT

24. *Philosophy of Religion.* Three hours. Third Term.  
Elective for Seniors and Graduates who have had previous  
philosophical training.

An investigation of the ultimate grounds of religious belief.

Professor EVERETT [This year Professor COLVIN]

14, 28, 42. *Philosophical Seminary.* Three hours. Through  
the year. Elective for Graduates.

Lectures, papers and discussions on the more difficult problems  
of philosophy. Subject for 1903-04: Historical and critical study  
of Idealism as epistemological theory.

Professor EVERETT [This year Professor COLVIN]

[17. *Discussions in Casuistry.* One hour. Second Term.  
Elective for Seniors and Graduates.] Not offered in 1903-04.

Professor MEIKLEJOHN

33, 34, 35. *Kantian and Post-Kantian Philosophy.* Three  
hours. Through the year. Elective for Seniors who have  
taken Philosophy 8, 9, 10 and for Graduates.

Kant's *Critique of Pure Reason* will be studied as the source of  
German Rationalism. The same line of thought will be traced in  
the *Critique of Practical Reason*, and in the works of Fichte,  
Schelling and Hegel.

Professor MEIKLEJOHN

6, 7, 11. *Advanced Logic.* Three hours. Through the year.  
Elective for Graduates.

A seminary for the discussion of the more difficult problems of  
logic. Reading, papers and discussions.

Professor MEIKLEJOHN

*Philosophical Club.* A Philosophical Club, consisting of  
Graduate, Senior and Junior students of Philosophy, meets once  
a month for the reading of papers and for free discussion. Though  
the organization is primarily in the hands of the students, the  
officers of instruction in the philosophical department, as well as  
other persons interested in philosophy usually attend.

**EDUCATION**

Professor JACOBS

1. *History of Educational Theories and Institutions.* Three hours. First Term. Elective for Juniors, Seniors and Graduates.

Education among the Greeks and the Romans; the rise and constitution of Universities; Erasmus and the Humanists; Comenius and the Realists; Rousseau and the Naturalists; Psychologizing education, Pestalozzi, Froebel, Herbart.

2. *A Critical Study of Modern Education.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates.

Present theories as growing out of past theories are discussed and the validity of their claims considered. The effectiveness of present systems is brought into comparison with that of past systems, and that of foreign countries. Especial attention is given to the influences of education upon the state and society, and to well organized experiments being conducted at the present time. The problems are laid open which an adequate theory of education must solve.

3. *The Fundamental Principles of Education.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

The meaning and aim of education; the sequence and coördination of studies; the principles of instruction as derived from psychology; apperception; the steps in method; the use of the type in instruction; the training of the will and the principles of moral education.

NOTE: Courses 1, 2 and 3 treat of education in its relation to the individual, and to the social and political whole, and hence are of interest to all students, whether they intend to teach or not. At the same time they form a proper introduction to the courses which follow. Those who intend to teach are recommended to elect these courses during the Junior year.

4. *The Psychology of Education.* Three hours. First Term. Elective for Seniors and Graduates.

The principles of psychology applied to method in education and instruction. Mind is considered from the point of view of growth and development. The more subtle and philosophical questions of psychology are avoided, and the more fundamental activities of mind are emphasized with a purpose of showing how a knowledge of these may be utilized by the student and by the teacher. While an extended knowledge of psychology is useful it is not necessary in order to pursue the course with advantage.

5. *The Hygiene of Education.* Three hours. Second Term. Elective for Seniors and Graduates.

The hygiene of growth. Play and fatigue. Sight and hearing. School diseases. School architecture. Warming, ventilating and lighting. Sanitation. School furniture. School programs.

6. *Practical Introduction to Teaching.* Three hours. Third Term. Elective for Seniors and Graduates.

The method of the recitation. Management and discipline of classes. Observation of good teaching. Practical applications in method.

**NOTE:** *Teacher's Certificates.* The above courses, 1-6, cover the requirements in professional studies for certificates of the First Grade in all states except where practice-teaching or experience is demanded. In Rhode Island, *the holding of a certificate is required of all teachers* in schools supported in whole or in part by public money. Certificates of the First Grade are granted without examination to those who have completed the above courses and hold a college degree. Due credit is also given for separate courses.

**NOTE:** Those who have completed courses 1-6 and hold a college degree are eligible to appointment in the Primary and Grammar Training Schools of Providence, under especially favorable conditions.

- 7, 8, 9. *Methods in Secondary School Studies and the Organization, Equipment and Management of Secondary Schools.* Three hours (two hours of class-room attendance.) Elective for Graduates and experienced teachers. Required of student teachers.

Importance and meaning of secondary school studies and their organization into a curriculum; method as applied to each subject and the resources at the command of the teacher; such a view of the work of the school as is necessary to the teacher in order that he may understand the whole and co-ordinate his work with the whole. The following studies are given especial attention:—

First Term (7) Latin and Modern Languages; Second Term (8) History and English; Third Term (9) Science and Mathematics.

While the treatment of the subject is continuous throughout the year, the work of each term forms a more or less distinct unit and may be pursued separately. For explanation of the work of student-teachers see Index of the Catalogue.

10, 11, 12. *Training in Practical Teaching.* Three hours. Through the year.

Practice-teaching. Control and conduct of classes, plans for single lessons, and for "method-wholes," observation of the work of experienced teachers, reports, private conferences. Opportunity for practice teaching in the High Schools of the city is given to capable graduate students, and in the Grammar Schools to a limited number of Seniors preparing to teach in the grades or to fill places as principals or superintendents.

The practice teaching is done under the following Supervising Teachers:—Charles E. Dennis, Ph. D., *Latin*; Victor Frazer, A. M., *History*; Charles E. Tilley, A. M., *Physics and Chemistry*; Grace H. Parker, A. B., *Natural Science*; Horace E. Jacobs, A. M., *Mathematics and Latin*; Harriet P. Fuller, A. B., *Latin*; Florence J. Whiting, A. M., *Physics and Chemistry*; Isaac O. Winslow, A. M., *Grammar Grades*; Mary Williams, *Eighth Grade*.

13, 14, 15. *Seminary in Educational Problems.* Three hours (two hours of class-room attendance.) Elective for Graduates and experienced teachers. Required of student teachers.

The seminary will meet on Saturday mornings from ten to twelve o'clock and will make an intensive study of present problems in education. Reviews and discussions of recent important publications; reports on special studies undertaken by members. The chief subjects of the course will vary from year to year. For the year 1903-04 the subjects will be: First Term (13) Imitation and its Function in Education; Second Term (14) Social Phases of Education. Third Term (15) "The Making of our Middle Schools" with especial emphasis upon Rhode Island.

The work of the previous term is not necessary to the work of the succeeding term.

## XVII. PHYSICS

1, 2, 4. *Elementary Physics.* Three hours. Through the year. Elective for Sophomores, Juniors, Seniors and others who have passed in Mathematics 1, 2, 3.

First Term, kinematics and dynamics; Second Term, molecular physics; Third Term, electricity. Daniell's *Principles of Physics*, lectures illustrated by experiments and the lantern. Weekly written exercises corrected in detail by the instructors. Designed for those who have had little previous training in physics; pre-

supposes only a good knowledge of elementary mathematics. The entire course is a unit, setting forth the principles of modern physics. It is sufficiently broad to be a commentary upon whatever preliminary training in physics the student may have had, and to serve as a theoretical introduction to the professional courses.

Professor BARUS

- [32. *Optics*. Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in 1.] Not offered in 1903-04.

Professor BARUS

NOTE: The three courses, 32, 37, 38, consist of lectures on the elementary principles of Optics, Acoustics and Heat. They alternate, in turn, with 2, for the convenience of the other courses.

- [37. *Acoustics*. Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in 1.] Not offered in 1903-04.

Professor BARUS

- [38. *Heat*. Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in 1.] Not offered in 1903-04.

Professor BARUS

- 5, 9, 10. *Physical Measurements*. Three hours. Through the year. Elective for students who have passed in 1, 2, 4.

Six hours in the laboratory. Elementary theory and practice of physical manipulation. Reports of experiments and solution of problems.

Professor PALMER

- 13, 14, 16. *Mathematical Treatment of Dynamical Problems*. Three hours. Through the year. Elective for Seniors and Graduates who have passed in 10 and Mathematics 16.

Lectures. First Term, discussion of the general principles of dynamics and the development of the general equations of motion; Second and Third Terms, application of these principles to special problems in thermodynamics and hydrodynamics.

Professor PALMER

17, 18, 19. *Laboratory Course, advanced.* Three or six hours. Through the year. Elective for students who have passed in 10.

Six or twelve hours of attendance. For those who are already familiar with the use of physical apparatus and are capable of carrying on investigations more or less independently. Special problems and reference to original sources for methods of solution.

Professors BARUS, PALMER and WATSON

20, 21. *Harmonic Analysis.* Three hours. Second and Third Terms. Elective for Seniors and Graduates who have passed in 1, 2, 4 and Mathematics 14, 15.

Importance of Fourier's method shown by examples taken from the analytical theory of heat, from elastics, alternating electricity, and elsewhere; treatment by the aid of spherical harmonics, Bessel functions and Lamé functions.

Professor BARUS

22. *Behavior of Matter through Long Ranges of Temperature.* Elective for Graduates.

Original research. Investigation of accurate methods and data in absolute pyrometry; determination of the high temperature constant of non-volatile bodies with a view to the elucidation of fundamental questions in the physics of the earth's crust.

Professor BARUS

NOTE: Courses 22 to 25, inclusive, occupy more or less time a week, according to the requirements of the students. These courses are definitely organized, and the requisite apparatus is provided for conducting them. Other courses of original research are offered to suit the special needs or training of advanced students. The order of interchange between 13, 14, 16, and 26, 27, 28, and between 20, 21, and 29, 30, 31, is not fixed. The preference of the applicants for instruction will be regarded in determining which shall be given.

23. *Behavior of Matter through Long Ranges of High Pressure.* Elective for Graduates.

Original research. Thermodynamics of the change of state from solid to liquid, due either to fusion or to solution, with especial reference to the continuity of solid and liquid, and to the location of the lower critical temperature.

Professor BARUS

**24. Absolute Viscosity of Solids as Compared with Liquids and Gases.** Elective for Graduates.

Original research. Investigation of absolute data for the viscosity of solids.

Professor BARUS

**25. Physical Properties of the Iron Carburets.** Elective for Graduates.

Original research. A consideration of the physical properties of iron, steel and cast iron with reference to their bearing on metallurgical and electro-technical problems.

Professor BARUS

**26, 27, 28. Mathematical Theory of Electricity and Magnetism.**

Three hours. Through the year. Elective for Graduates and Seniors who have passed in 10 and Mathematics 16.

Lectures. A development of the mathematical theory of electricity and magnetism, and a discussion of the more important problems of electrical science.

Professor PALMER

**29, 30, 31. Physics, advanced.** Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in Mathematics 12, 13 and 14.

Lectures on dynamics, potential, elastics, hydrostatics, hydrodynamics, viscosity, capillarity, electrostatics, magnetism, electromagnetism, thermo-electrics, induction, Fresnel's optics, the electro-magnetic theory of light, thermal analytics and thermodynamics. Completed in two years. Alternating, if desirable, with 20, 21.

Professor BARUS

**NOTE:** Candidates for the degree of Master of Arts with a major in physics will be held responsible for at least one of the advanced courses in theoretical physics. The requirements for non-resident students with a minor in physics are quite as advanced as for students in residence with a major in physics. The department is able to offer every reasonable facility both for research work and for the study of the higher problems in physics; it is not able to offer much encouragement to those wishing to take degrees not in residence.

**36, 39. Precision Measurements in Photometry, Electricity and Magnetism.** Three hours. First and Second Terms. Elective for students who have passed in 10 and Mathematics 13.

Six hours in the laboratory.

Professor PALMER

46. *Applied Electro-Chemistry.* Three hours. Third Term.  
 Elective for students who have passed in 39 and 15.  
 Six hours in the laboratory.

Professor PALMER

## ELECTRICAL ENGINEERING

Professor WATSON

11. *Elementary.* Three hours. First Term. Elective for students who have passed in 4.

Definite instruction in methods of generating and utilizing electric currents; introductory to the technical courses.

12. *Dynamo-Electric Machinery.* Three hours. Second Term. Elective for students who have passed in 11, and who have taken or are taking 5, 9, 10 and Mathematics 12.

Two hours of recitation, and two hours of laboratory practice. Technical study of theory and calculations for dynamo-electric machinery.

15. *Laboratory.* Three hours. Third Term. Elective for students who have passed in 11 and 12.

One hour of recitation and four hours of laboratory work. Practical methods of operating and testing various sizes and types of standard dynamos.

33. *Periodic or Alternating Currents of Electricity.* Three hours. First Term. Elective for students who have passed in 15, and who have taken or are taking Mathematics 15.

A mathematical and graphical treatment.

34. *Utilization of Alternating Currents.* Three hours. Second Term. Elective for students who have passed in 33.

35. *Laboratory, Alternating Current Machinery.* Three hours. Third Term. Elective for students who have passed in 34.

Six hours in the laboratory. Testing of apparatus. The construction of new apparatus may be included, in the case of suitably qualified students, as a minor portion of this course.

40. *Development and Scope of Industrial Electricity.* Three hours. First Term.

May be taken with 11.

41. *Telephone and Telegraph Engineering.* Three hours.  
Second Term.

Two hours of recitation and one hour of laboratory work in construction of electrical apparatus. May be taken with 12.

42. *Design and Calculation of Direct Current Machinery.*  
Three hours. Third Term.

Time spent in actual drawing will be counted like laboratory work. May be taken with 15.

43. *Electric Railway Engineering.* Three hours. First Term.  
Elective for students who have passed in 15.

44. *Design and Calculation of Alternating Current Machinery.*  
Three hours. Second Term. Elective for students who have passed in 33.

45. *Central Station Design, Equipment and Systems of Distribution.* Three hours. Second Term. Elective for students who have passed in 33.

47. *Specific Engineering Problems.* Three hours. Third Term.

Reading and discussion. Seminary method.

## XVIII. POLITICAL ECONOMY

12. *Political Economy, elementary.* Three hours. Third Term.  
Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12 and Political Science 12.

Professor GARDNER

NOTE: *The courses in this department, other than 12, are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

NOTE: Courses 6, 7, 16, 13, 14, 18, will probably not be given in 1904-05. Students intending to take only one course in this department are advised to take 1, 2, 3. Students intending to pursue political economy are advised to take the required history in their Sophomore year.

1, 2, 3. *General Economics.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in 12.

This is a continuous course, new students not being admitted in the Second and Third Terms.

First Term, the development and significance of the more important elements in the existing form of industrial organization. The following are among the topics treated: The independence and responsibility of the individual, private property, freedom in the choice of industry, freedom of exchange and contract, competition, speculation, capitalistic control of industry, the tendency to industrial combination, money, and credit. The origin and significance of modern industrial organization is made clear by an historical review of the industrial systems of the chief nations of the ancient and modern world. Second Term, the principles governing the distribution of wealth under the existing form of economic organization. Third Term, some of the more important economic problems, such as the tariff, the regulation of the conditions of employment, particularly regulations affecting hours of labor and the employment of women and children, trade unions, arbitration and conciliation, coöperation and profit sharing, socialism, the single tax, the railway problem, governmental ownership and management of monopolies, and the regulation of industrial combination.

Professor GARDNER (First and Second Terms)

Dr. WILLETT (Third Term)

19. *Industrial History of England.* Three hours. First Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Professor GARDNER

20. *Industrial History of the United States.* Three hours. Second Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Professor GARDNER

21. *Existing Industrial Conditions in the United States.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Professor GARDNER

NOTE: 19, 20 and 21 form a continuous course, but may be taken separately.

**13, 14, 18. *History and Present Condition of Economic Thought.***

Three hours. Through the year. Continuous course. Elective for Juniors, Seniors and Graduates who have passed in 12.

A study of the development of economic thought since the Middle Ages, and of the prevailing economic theories of the present time. Chief attention is paid to the contributions made by the few great writers. Special emphasis is laid on the relations between economic thought and economic life and institutions.

Dr. WILLETT

**6, 7. *Money and Banking.*** Three hours. First and Second Terms. Continuous course. Elective for Juniors, Seniors and Graduates who have passed in 12.

A discussion of the principles of money and banking and a description of the monetary and banking systems of the chief nations, with special reference to the United States.

Professor GARDNER

**16. *Industrial Corporations, their History, Significance and Regulation.*** Three hours. Third Term. Elective for Juniors, Seniors and Graduates who have passed in 12.

Special attention is given to railways and other quasi-public corporations and to the recent tendency towards industrial combinations.

Professor GARDNER

**22, 23, 24. *Investigation of Special Subjects.*** Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed in 12 and are approved by the department.

These courses do not constitute a single course and may be taken separately. They are intended to train the student in methods of gathering and handling data in the study of economic or social or political problems and conditions, and will be conducted in a manner similar to that followed in laboratory courses. Six hours of attendance will be required, and each student will be assigned a subject for investigation to be worked up under the direction and supervision of the instructor. The number of students who can be accommodated in these courses is limited and preference will be given to students who are taking other courses in economics.

Professor GARDNER and Dr. WILLETT

## XIX. ROMAN LITERATURE AND HISTORY

1. *Livy.* Three hours. First Term. Elective for students who presented elementary and advanced Latin for admission.

While grammatical study and literary criticism receive attention in this as in the other courses of the Freshman year, the special aim is to enable the student to acquire facility in reading and to instruct him in the use of the Latin texts as a means of acquiring a knowledge of Roman history.

Professor HARKNESS and Mr. PAINE

2. *Cicero's Letters.* Three hours. Second Term. Elective for students who presented elementary and advanced Latin for admission.

Professor HARKNESS and Mr. PAINE

3. *Tacitus' Germania and Agricola.* Three hours. Third Term. Elective for students who presented elementary and advanced Latin for admission.

Professor HARKNESS and Mr. PAINE

- [46, 47. *Roman Life.* Three hours. Second and Third Terms. Elective for Freshmen and Sophomores.] Not offered in 1903-04.

The private and public life of the Romans based on the monuments and literature. Intended to give a comprehensive view of the general civilization of Rome. Lectures supplemented by reading and reports. No knowledge of Greek or Latin is required.

Professor GREENE

NOTE: This course is a continuation of Greek 46. The three terms together constitute the course called History of Greek and Roman Life and Institutions.

48. *Roman Literature.* Three hours. Second Term. Elective for Freshmen and Sophomores.

Professor HARKNESS

NOTE: This course follows Greek 47 and is continued in the third term by Indo-European Philology 1. The three terms together constitute the course in Greek and Roman Literature and History of Language, and take the place of Greek 46, Latin 46, 47.

4. *Horace's Odes and Epodes.* Three hours. First Term.  
Elective for Sophomores.

In this as in the other Sophomore courses, the literary side of the study is made prominent. A part of the time is occupied with a critical study of the poems, while a part is devoted to rapid reading with a view to comprehending the spirit of the authors. Lectures are given by the instructor, and literary topics are assigned to the class for special study.

Mr. PAINE

5. *Catullus, Tibullus and Propertius.* Three hours. Second Term. Elective for Sophomores.

Mr. PAINE

6. *Satires of Horace and Juvenal.* Three hours. Third Term.  
Elective for Sophomores.

Professor HARKNESS

7. *Origin of Latin Poetry and Development of the Drama.* Three hours. First Term. Elective for Juniors and Seniors.  
Readings from Plautus and Terence.

Professor HARKNESS

8. *Poetry of the Republic, continued, and Poetry of the Augustan Age.* Three hours. Second Term. Elective for Juniors and Seniors.

Readings from Lucretius and other authors of this period.

Professor HARKNESS

9. *Poetry of the Silver Age.* Three hours. Third Term.  
Elective for Juniors and Seniors.

Professor HARKNESS

- [11. *Prose of the Republican Period.* Three hours. First Term. Elective for Juniors and Seniors.] Not offered in 1903-04.

Development of oratory; reading from specimens of Early Latin, from Cicero's *Brutus*, and from Quintilian.

Professor HARKNESS

NOTE: The advanced courses open to Juniors and Seniors relate to the development and history of Roman literature. Poetry and prose are discussed in alternate years. The aim of these courses is to give a connected and comprehensive view of the entire range of Roman literature. Lectures are given on the lives and writings of the authors, and characteristic selections are read. Topics in literary history and criticism are assigned to members of the class for special study and investigation.

[12. *Prose of the Augustan Age.* Three hours. Second Term.  
 Elective for Juniors and Seniors.] Not offered in 1903-04.  
 Development of historical writing; readings from the historians.

Professor HARKNESS

[13. *Prose of the Silver Age.* Three hours. Third Term.  
 Elective for Juniors and Seniors.] Not offered in 1903-04.  
 Roman philosophers; readings from Seneca and other authors  
 of this period.

Professor HARKNESS

10, 14, 15. *Private Life and Antiquities of Rome.* One hour.  
 Through the year. Elective for Juniors, Seniors and Graduates.

Professor HARKNESS

16, 17, 18. *Petronius, Pliny the Younger, Martial.* One hour.  
 Through the year. Elective for Juniors, Seniors and  
 Graduates.

Professor HARKNESS

19, 20, 21. *Epigraphy.* Two hours. Through the year.  
 Elective for Graduates and qualified Undergraduates.

Professor HARKNESS

22, 23, 24. *Palaeography and Textual Criticism.* Two hours.  
 Through the year. Elective for Graduates and qualified  
 Undergraduates.

Professor HARKNESS

31, 32, 33. *Roman Architecture and Topography.* One hour.  
 Through the year. Elective for Juniors, Seniors and Graduates.

Professor HARKNESS

37, 38, 39. *Latin Composition.* One hour. Through the year.  
 Elective for Sophomores, Juniors and Seniors.

Mr. PAINE

40, 41, 42. *Seminary in Latin.* Two hours. Through the  
 year. Elective for Graduates.

Professor HARKNESS

## XX. ROMANCE LANGUAGES AND LITERATURES

### FRENCH

A, B, C. *Elementary French.* Three hours. Through the year. Required of all students who did not present French for admission.

Grammar, composition, dictation, translation of selections from modern authors into idiomatic English. The equivalent of the French required for admission.

MR. HAWKINS

1, 2, 3. *Language.* Three hours. Through the year. Required of all Freshmen who presented elementary French for admission.

A thorough study of French syntax, translation of modern authors, written and oral re-translation into French of exercises based upon the texts read, dictation. Intended to give students a large working vocabulary.

Professor JOHNSON, Messrs. WILLIAMSON and HUNKINS

4, 5, 6. *Literature.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3, or who presented advanced French for admission.

First Term, *Romanticism*; Hugo, Lamartine, De Musset. Second Term, *Realism and Naturalism*; Balzac, Daudet, Augier, Zola. Third Term, *The Literature of To-day*. A wide course of reading in nineteenth century authors. Abstracts (in French) of works read outside the class. Sight reading a prominent feature.

Professor JOHNSON

[13, 14, 15. *Practice in Writing and Speaking.* Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3 or who presented advanced French for admission.] Not offered in 1903-04.

Intended more especially for those preparing to teach. A large amount of set and free composition, abstracts (in French) of assigned reading, dictation, conversation, oral translation into French of an English novel, abstracts of French read in class by the instructor.

Professor JOHNSON

[16, 17, 18. *Old French.* Three hours. Through the year. Elective for Seniors and Graduates.] Not offered in 1903-04

The elements of Romance Philology and an introduction to the literature of the Middle Ages in France.

Mr. MORSE

37, 38, 39. *The French Drama.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates who have passed with credit in French 1, 2, 3.

From Corneille to Rostand, with special study of its classical and romantic sources and influences.

Professor LANGDON

### ITALIAN

1, 2, 3. *Modern Italian.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

Grammar, composition, conversation, and rapid translation of modern authors.

Professor LANGDON

### COMPARATIVE LITERATURE

1, 2, 3. *Dante in English.* Three hours. Through the year. Elective for Juniors, Seniors and Graduates.

A study of the whole of the *Divina Commedia* in English in the light of modern thought and in connection with the great world-poems, *Job*, the *Iliad-Odyssey*, the *Aeneid*, *Hamlet*, *Paradise Lost*, *Faust* and *The Ring and the Book*. An introduction to a study of comparative literature by means of the best available translations.

Professor LANGDON

### SPANISH

1, 2, 3. *Modern Spanish.* Three hours. Through the year. Elective for Juniors, and for Sophomores not electing more than one other modern foreign language.

Grammar, conversation, composition, writing from dictation, and rapid reading.

Professor JOHNSON

4, 5, 6. *Language and Literature.* Three hours. Through the year. Elective for those who have passed with credit in 1, 2, 3.

First Term, Valdés' *Jose*. Second Term, Galdos' *Dona Perfecta*. Third Term, Gil y Zárate's *Guzmán el Bueno*, Echegaray's *O Locura ó Santidad*, selections from *Don Quijote*. Daily exercises in composition and conversation. Reports (in Spanish) of outside reading.

Professor JOHNSON

## XXI. SOCIAL AND POLITICAL SCIENCE

NOTE: *The courses in this department other than 12 are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the departments of Social and Political Science and Political Economy.*

### SOCIAL SCIENCE

12. *Elementary Course.* Three hours. First Term. Elective for Sophomores, Juniors and Seniors.

Professor WILSON

10. *Social Institutions.* Three hours. First Term. Elective for Juniors and Seniors.

Development, forms, importance, as shown in the family, church, etc.

Professor DEALEY

2. *Social Problems and Conditions.* Three hours. Second Term. Elective for Juniors and Seniors.

Relates to charity, criminology, etc.

Professor WILSON

3. *Social Problems.* Three hours. Third Term.

Special study of important social questions.

Professor WILSON

4. *Social Philosophy.* Three hours. Third Term. Elective for Juniors and Seniors.

Aims and ideals in social life, social well-being.

Professor DEALEY

**For Undergraduates, with the Permission of the Department**

1. *The Principles of Sociology.* Three hours. First Term.  
Nature of society. Social forces and environment.  
Professor WILSON
5. *Development of Social Theory.* Three hours. Second Term.  
Traces important theories, ancient and modern, in regard to social conditions and development.  
Professor DEALEY
11. *Demography.* Three hours. Third Term. Elective for Juniors and Seniors.  
Dispersion of races. Social study of race characteristics. Emigration, immigration, etc.  
Professor WILSON

NOTE: With these courses are correlated courses 22, 23, 24, offered by the department of Political Economy, which see.

**For Graduates**

- 7, 8, 9. *Current Social Theory and Practice.* One hour.  
Through the year.  
Professors WILSON and DEALEY

Also courses 1, 5, 11, see detailed statement above.

**POLITICAL SCIENCE**

12. *Elementary.* Three hours. Second Term. Elective for Sophomores, Juniors and Seniors who have passed in Social Science 12.  
Professor DEALEY
3. *International Law and Relations.* Three hours. First Term. Elective for Juniors and Seniors.  
Professor WILSON
7. *Diplomacy and World Politics.* Three hours. Second Term. Elective for Juniors and Seniors.  
Art and practice of international negotiation with particular reference to foreign diplomacy.  
Professor WILSON

11. *Diplomacy and World Politics.* Three hours. Third Term. Elective for Juniors and Seniors.

American development and problems.

Professor WILSON

4. *United States Government.* Three hours. First Term. Elective for Juniors and Seniors.

Constitution, organization, powers and methods of our national system of government.

Professor DEALEY

15. *Local and Municipal Government.* Three hours. Second Term. Elective for Juniors and Seniors.

Organization and functions of the states and cities of the United States.

Professor DEALEY

**NOTE:** This course is supplemented by course 35 on Municipal Improvements, offered by the department of Civil Engineering, which see.

2. *Comparative Study of Constitutions.* Three hours. Third Term. Elective for Juniors and Seniors.

With special reference to the constitutions of Germany, France, Great Britain and Switzerland.

Professor DEALEY

**For Undergraduates, with the Permission of the Department**

1. *The State.* Three hours. First Term.

Origin, forms, development, functions and institutions of the state.

Professor DEALEY

16. *Constitutional Law.* Three hours. Second Term.

Principles and development with special reference to the Constitution of the United States.

Professor DEALEY

6. *Roman Law.* Three hours. Third Term.

The influence of Roman law on political institutions.

Professor DEALEY

17. *Political Problems.* Three hours. First Term.

With special reference to the United States.

Professor WILSON

18. *Political Parties.* Three hours. Second Term.  
Their development in the United States and Europe.  
Professor WILSON
19. *The Latin-American Republics.* Three hours. Third Term.  
Their governments and social conditions.  
Professor DEALEY
13. *Administration.* Three hours. First Term.  
Principles and national systems.  
Professor WILSON
14. *Administration.* Three hours. Second Term.  
Local and colonial.  
Professor WILSON
5. *Development of Political Theory.* Three hours. Third Term.  
The growth of important political ideas traced from Plato to the present time, with emphasis on the evolution of democracy.  
Professor DEALEY

#### **For Graduates**

- 8, 9, 10. *Current Political Theory and Practice.* One hour.  
Through the year.  
Professors WILSON and DEALEY

Also courses 1, 16, 6, 17, 18, 19, 13, 14, 5; see detailed statement above.

#### **ELEMENTARY LAW**

Mr. Moss

- [1. *Persons and Personal Property.* Three hours. First Term.  
Elective for Juniors and Seniors.] Not offered in 1903-04.

NOTE: Groups 1, 2, 3, and 4, 7, 8 are given in alternate years. In 1903-04 the courses given will be 4, 7, 8. Courses 1, 2, 3 will be offered in 1904-05. Courses 5, 6, 9 will for the present be omitted. These groups should be taken consecutively, beginning in the Junior year. While the primary purpose of these courses is to cultivate a legal mind, yet they prepare thorough students to enter most law schools with advanced standing and possibly to shorten their law course by one year; they also give a good foundation to the student who expects to prepare for the bar in a law office.

- [2. *Real Property.* Three hours. Second Term. Elective for Juniors and Seniors.] Not offered in 1903-04.
- [3. *Contracts.* Three hours. Third Term. Elective for Juniors and Seniors.] Not offered in 1903-04.
4. *Torts and Criminal Law.* Three hours. First Term. Elective for Juniors and Seniors.
7. *Equity.* Three hours. Second Term. Elective for Juniors and Seniors.
8. *Equity.* Three hours. Third Term. Elective for students who have passed in 7.
- [9. *Historical Development of the Common Law.* Three hours. First Term. Elective for Juniors and Seniors.] Not offered in 1903-04.
- [5. *Common Law Practice and Pleading.* Three hours. Second Term. Elective for Juniors and Seniors.] Not offered in 1903-04.
- [6. *Evidence.* Three hours. Third Term. Elective for Juniors and Seniors.] Not offered in 1903-04.

## XXII. ZOÖLOGY, GEOLOGY AND ANTHROPOLOGY

Professor PACKARD

### ZOOLOGY

1. *General Course on Invertebrate Animals.* Three hours. Second Term. Elective for Juniors and Seniors.
3. *Organic Evolution.* Three hours. Third Term. Elective for Juniors, Seniors and Graduates.

Primary and secondary factors of evolution; relation of animals to the world around them; variation of species; zoogeography; effects of light, changes of temperature, food, climate; effects of isolation; kinetogenesis or dynamical evolution; mimicry; heredity; views held by different schools of evolutionists. Lectures and demonstrations.

## GEOLOGY

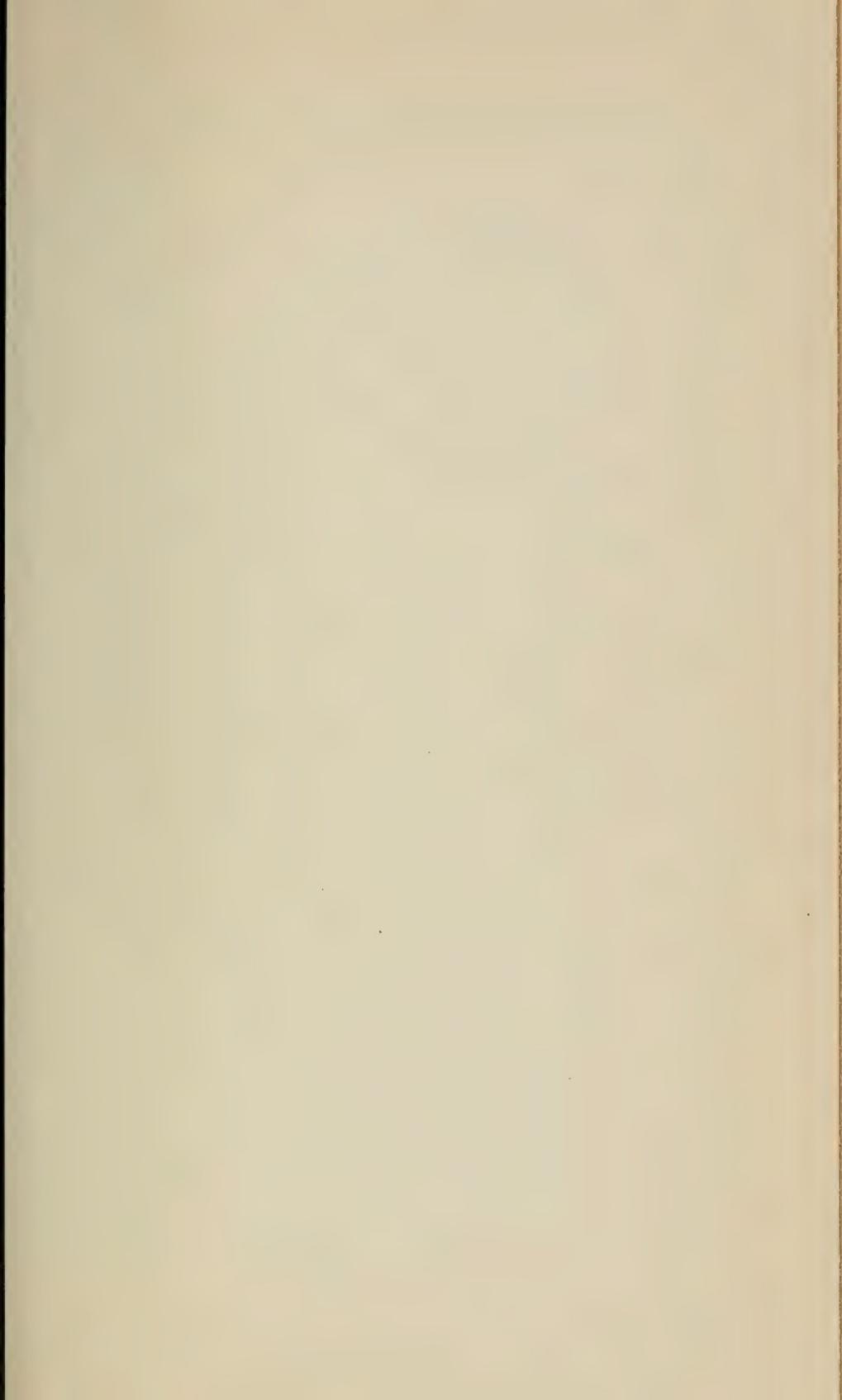
1. *Physical Geology.* Three hours. First Term. Elective for Seniors.
5. *Structural and Stratigraphic Geology.* Three hours. First Term. Elective for Seniors.  
Six hours of attendance. Field and laboratory work.
2. *Historical Geology, including Paleontology.* Three hours. Second Term. Elective for Seniors or for students who have passed in Geology 1, and Zoölogy 1 and 3.  
Lectures, text-book and laboratory work.
9. *Palaeontology.* Three hours. Third Term. Elective for students who have passed in Geology 1, 2.

## ANTHROPOLOGY

1. *General Course.* Three hours. Third Term. Elective for Seniors and Graduates.

The principles of ethnology, ethnography and prehistoric archæology; man as related to other primates, origin of man, prehistoric races, language and race, writing, arts of life, amusements, primitive culture, including folk-lore, myths, primitive religious cults and primitive society. Lectures illustrated by bone, stone and bronze relics of the prehistoric races of Europe, Asia and Africa, by American stone and bone implements, by collections from New England shell-heaps, and by lantern views illustrating the fossil races of man and his art-remains in the Old World.

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NEW YORK CITY.





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ANNOUNCEMENT

1904-05



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BOOK

CLASS

VOLUME

BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

FOR THE

ACADEMIC YEAR

1904-1905



PROVIDENCE, R. I.

1904

# CALENDAR, 1904-1905

1904		1905							1905							1904		1905							
		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
July		3	4	5	6	7	8	9	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8		
		10	11	12	13	14	15	16			8	9	10	11	12	13	14	15	16	17	18	19	15		
		17	18	19	20	21	22	23			15	16	17	18	19	20	21	22	23	24	25	26	22		
		24	25	26	27	28	29	30			22	23	24	25	26	27	28	29	30	31	1	2	30		
		31									29	30	31						30	31					
Aug.		1	2	3	4	5	6		1	2	3	4	5	6	7	8	9	10	11	12	13	14	5		
		7	8	9	10	11	12	13			12	13	14	15	16	17	18						12		
		14	15	16	17	18	19	20			19	20	21	22	23	24	25						19		
		21	22	23	24	25	26	27			26	27	28						20	21	22	23	24	26	
		28	29	30	31													27	28	29	30	31			
Sept.		4	5	6	7	8	9	10	1	2	3	5	6	7	8	9	10	11					1	2	
		11	12	13	14	15	16	17			12	13	14	15	16	17	18						9	9	
		18	19	20	21	22	23	24			19	20	21	22	23	24	25						15	16	
		25	26	27	28	29	30				26	27	28	29	30	31							22	23	
Oct.		2	3	4	5	6	7	8	1		2	3	4	5	6	7	8	1	2	3	4	5	6	7	
		9	10	11	12	13	14	15			9	10	11	12	13	14	15		8	9	10	11	12	13	14
		16	17	18	19	20	21	22			16	17	18	19	20	21	22		15	16	17	18	19	20	21
		23	24	25	26	27	28	29			23	24	25	26	27	28	29		22	23	24	25	26	27	28
		30	31								30								29	30	31				
Nov.		1	2	3	4	5					1	2	3	4	5	6			5	6	7	8	9	10	11
		6	7	8	9	10	11	12			7	8	9	10	11	12	13		12	13	14	15	16	17	18
		13	14	15	16	17	18	19			14	15	16	17	18	19	20		19	20	21	22	23	24	25
		20	21	22	23	24	25	26			21	22	23	24	25	26	27		26	27	28	29	30		
		27	28	29	30						28	29	30	31											
Dec.		4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7
		11	12	13	14	15	16	17			11	12	13	14	15	16	17		10	11	12	13	14	15	16
		18	19	20	21	22	23	24			18	19	20	21	22	23	24		17	18	19	20	21	22	23
		25	26	27	28	29	30	31			25	26	27	28	29	30			24	25	26	27	28	29	30

# UNIVERSITY CALENDAR, 1904-1905

## 1904.

- September 7.*      *Wednesday.* Annual Meeting of the Corporation (first Wednesday in September).
- September 15-19.*    *Thursday, Friday, Saturday, and Monday.* Examinations for admission to the Freshman Class.
- September 19, 20.*    *Monday and Tuesday.* Examinations for admission to Advanced Standing.
- September 20.*       *Tuesday.* Last day for registration of Undergraduate Students.
- September 21.*       *Wednesday.* ACADEMIC YEAR BEGINS: 9.00 A. M.
- September 21.*       *Wednesday.* Last day for registration of Resident Graduate Students.
- October 1.*           *Saturday.* Examination in Greek for the President's Premiums.
- October 5.*           *Wednesday.* Examinations in Latin for the President's Premiums.
- October 8.*           *Saturday.* Examination in Mathematics for the Hartshorn Premiums.
- October 12.*          *Wednesday.* Examination in French for the President's Premiums.
- November 24-26.*     *Thursday, Friday, and Saturday.*

## THANKSGIVING RECESS

- December 17-23.*     *Saturday to Friday.* Term Examinations.
- December 24, 1904, to January 5, 1905.* *Saturday to Thursday inclusive.*

## CHRISTMAS RECESS

1905.

- January 5.*      *Thursday.*    Last day for registration of Undergraduate Students.
- January 6.*      *Friday.*     SECOND TERM BEGINS: 9.00 A. M.
- February 21.*      *Tuesday.*    Gaston Prize Medal Competition.
- February 22.*      *Wednesday.* Washington's Birthday. No University exercises.
- March 11-17.*      *Saturday to Friday.* Term Examinations.
- March 18-28.*      *Saturday to Tuesday inclusive.*

#### SPRING RECESS

- March 28.*      *Tuesday.* Last day for registration of Undergraduate Students.
- March 29.*      *Wednesday.* THIRD TERM BEGINS: 9.00 A. M.
- March 30.*      *Thursday.* Last day for receiving theses of candidates for the Doctor's degree.
- May 9.*      *Tuesday.* Carpenter Prize Speaking Contest.
- May 23.*      *Tuesday.* Hicks Prize Debate.
- May 30.*      *Tuesday.* Memorial Day. No University exercises.
- May 31.*      *Wednesday.* Last day for examinations for Advanced Degrees.
- June 10-16.*      *Saturday to Friday.* Term Examinations.
- June 18.*      *Sunday.* Baccalaureate Sermon: First Baptist Meeting House, 4.30 P. M.
- June 19.*      *Monday.* Class Day.
- June 20.*      *Tuesday.* Annual Meeting of the Phi Beta Kappa Society: 5 University Hall, 9.30 A. M.

- June 20.*            *Tuesday.* Ivy Day, Pembroke Hall.
- June 20.*            *Tuesday.* Annual Meeting of the Alumni: Manning Hall, 2 p. m.
- June 21.*            *Wednesday.* ONE HUNDRED AND THIRTY-SEVENTH ANNUAL COMMENCEMENT (third Wednesday in June): First Baptist Meeting House, 10.00 a. m.
- June 22.*            *Thursday.* Meeting of the Corporation.
- June 22-26.*        *Thursday, Friday, Saturday, and Monday.* Examinations for Admission to the Freshman Class and to Advanced Standing.

#### SUMMER VACATION

- September 6.*        *Wednesday.* Annual Meeting of the Corporation (first Wednesday in September).
- September 14-18.*     *Thursday, Friday, Saturday, and Monday.* Examinations for admission to the Freshman Class and to Advanced Standing.
- September 19.*        *Tuesday.* Last day for registration of Undergraduate Students.
- September 20.*        *Wednesday.* ACADEMIC YEAR BEGINS: 9.00 a. m.



# GENERAL ANNOUNCEMENTS

FOR THE

## ACADEMIC YEAR, 1904-1905

The academic year begins with chapel service at 9.00 A. M., Wednesday, September 21. At the close of this service the classes will begin their sessions according to the time schedule.

### EXAMINATIONS

Examinations for admission to the Freshman Class will be held in Wilson Hall, beginning Thursday, September 15, at 8 A. M.

Examinations for admission to the Sophomore, Junior, and Senior classes will be held on Monday and Tuesday, September 19 and 20. Candidates will report at the Registrar's office on Monday, September 19, at 9 A. M.

### REGISTRATION

The registration of undergraduate students will begin on Saturday, September 17, at 9 A. M., and close on Tuesday, September 20, at 6 P. M. The Committee on Admission to the Freshman Class, the Committee on Admission to Advanced Standing, and the Committee on Courses for Special Students will be in session on these days in the Administration Building. All undergraduate students registering or in any way changing their registration after September 20 will be charged a fee of three dollars, unless a satisfactory explanation is made to the Dean.

The registration of graduate students will begin on Saturday, September 17, at 9 A. M. and close on Wednesday, September 21, at 4 P. M. The Committee on Graduate Students will be in session in No. 5 Wilson Hall.

Candidates for admission to the Freshman Class will report for registration to the Committee on Admission to the Freshman Class. The official notification of admission and any other necessary credentials must be presented at the time of registration.

Members of the Sophomore, Junior, and Senior classes who have no conditions or failures will report at the Registrar's office. Those having conditions or failures will report to the Committee on Admission to Advanced Standing.

Candidates for admission to advanced standing will also report to the above committee.

Candidates for admission as special students will report to the Committee on Special Students. All applicants must satisfy the committee and the officers of instruction concerned, by examination or otherwise, of their fitness to take the courses desired. These examinations are held on Thursday, Friday, Saturday, and Monday, September 15, 16, 17, 19.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed. The guarantor must be the parent or guardian, or some other responsible person.

In consideration of the admission of .....  
as a student in Brown University, I hereby guarantee and promise to pay  
to said University all dues for rent, tuition, and incidental and other  
expenses properly chargeable to said ..... as such student,  
as and when the same shall respectively become payable.

A student paying the full room charges for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

Copies of the above form are enclosed with this announcement, and students are requested to have them filled out and returned to the Registrar before September 14. Students whose guarantees have already been filed will not be required to fill out new ones.

### SUGGESTIONS FOR GRADUATE STUDENTS

The attention of students contemplating graduate study at Brown University is called to the rules of the Graduate Department published in the Catalogue. All such students will find it greatly to their advantage to correspond during the summer with the professors of the departments in which they may wish to be enrolled, with the object of ascertaining beforehand to which of the graduate courses offered they will be admitted. Students who are able to offer extra work in accordance with § 2 of the rules relating to graduate instruction will do well to secure a certificate for this work from the Registrar and to submit it to the Committee on Graduate Students. Students who are not graduates of Brown University are advised to send their diplomas, certificates, etc., together with a marked catalogue or definite statement of the courses pursued in their undergraduate or other work, to the Committee on Graduate Students, care of the Registrar, before September 14. Blanks for preliminary registration may be obtained from the Registrar.

### CHOICE OF ELECTIVES

Students will find enclosed elective lists, on which to mark their choice of courses. These lists must be returned to the Registrar before the registration cards can be made out. It is urgently requested that these lists be returned, if possible, before September 14. The student advisers and the officers of instruction may be consulted on Saturday,

Monday, and Tuesday, September 17, 19, 20, at the hours and places announced on the bulletin boards. Students should avail themselves of the opportunities thus offered for consultation; as few changes can be made in the second or third term, it is of the greatest importance to make a wise choice of studies in the autumn term.

#### NOTES

Students desiring to elect extra courses must designate them on their elective lists.

Students must not select more than one study in the same group. The hours of courses not listed in the time schedule will be arranged with the instructors.

Candidates for the degree of Bachelor of Arts or Bachelor of Philosophy are requested to read carefully the sections which follow regarding the curriculum, and to make out their lists in accordance with the information there given.

Members of the Senior Class who are candidates for the degree of Civil Engineer are required to hand the subjects of their theses to the Professor of Civil Engineering on or before October 31, 1904.

Students desiring to rent rooms or to obtain room-mates should apply to the Registrar.

For official notices students should consult the bulletin boards in the north corridor of University Hall or in the Administration Building.

### CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS

Candidates are required to take courses as indicated below:

*Ancient Languages* (either Latin or Greek or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

*Modern Languages* (either French or German or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

Students presenting German only must take elementary French. Students presenting French only must take elementary German. Students presenting elementary French only must continue French in the Freshman

year and take elementary German in either the Freshman or the Sophomore year. Students presenting elementary German only must continue German in the Freshman year and take elementary French in either the Freshman or the Sophomore year. Students presenting elementary French and elementary German only must continue both languages, but may postpone the continuation of one language to the Sophomore year. Students presenting elementary work in one language and elementary and advanced work in the other must take in the Freshman year the language in which the elementary work only was presented. Students presenting elementary and advanced work in both languages may take the required six hours in either French or German or both.

*Mathematics.* Freshman year. Four or five hours.

Those who present Solid and Spherical Geometry and Plane Trigonometry must take Mathematics five hours a week during the Freshman year. This includes the courses now numbered Mathematics 4, 5, 6, 7, 9, 10, and 12. Students taking these courses will be enabled to begin work in the sciences requiring Mathematics one year earlier than other students.

*English (elementary).* Freshman year. Three hours.

*European History.* Three hours.

First and second terms, Sophomore or Junior year.

*English Literature.* Some three-hour course continuous through the year.

Sophomore, Junior, or Senior year.

*Physical or Natural Science.* Some three-hour course continuous through the year.

Freshman, Sophomore, or Junior year.

*Political Science, Social Science, and Political Economy.* One three-hour, one-term course in each of the three departments.

Sophomore, Junior, or Senior year.

*Philosophy.* Some three-hour course continuous through the year.

Sophomore, Junior, or Senior year.

**NOTE:** Candidates for the degree of Bachelor of Arts in June, 1905, are also required to take English 4, 5, 6, unless they have already received credit for the course.

## FRESHMAN YEAR

### 1. *Required Studies.*

Latin 1, 2, 3 or Greek A, B, C or 1, 2, 3. Three hours.

French A, B, C or 1, 2, 3 or } Three hours.

German 1, 2 3 or 24, 25, 26 }

Mathematics 3, 1, 2. Four hours, or  
 Mathematics 4, 5, 6, 7, 9, 10, 12. Five hours.  
 English 1, 2, 3. Three hours.

**II. Elective Studies.** One three-hour course running through the year must be chosen from the following list:

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French A, B, C. For students presenting no French for admission.

French 1, 2, 3. For students presenting elementary French for admission.

French 4, 5, 6. For students presenting advanced French for admission.

German 1, 2, 3. For students presenting no German for admission.

German 24, 25, 26. For students presenting elementary German for admission.

German 34, 35, 36. For students presenting advanced German for admission.

Greek 46, Latin 46, 47, (History of Greek and Roman Life and Institutions). For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission (subject to the consent of the department).

Botany 1, 2, 3. For all students.

Comparative Anatomy 15, 1, 35. For all students.

## SOPHOMORE YEAR

**I.** Required courses which must be completed by the end of the Sophomore year.

That portion of the required work in ancient and modern languages not completed in the Freshman year.

**II.** Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

## JUNIOR YEAR

**I.** Required courses which must be completed by the end of the Junior year.

The required History and Physical or Natural Science, if not previously taken.

**II.** Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

## SENIOR YEAR

- I. All required courses not previously taken.
- II. Elective courses sufficient with those taken under I. to make fifteen hours a week.

## CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Candidates are required to take courses as indicated below:

*Modern Languages.* An amount sufficient with the work presented for admission to complete the elementary course and a year of advanced work in both French and German. A student who is admitted in both advanced French and advanced German is required to continue only one of these languages for one year, three hours a week.

\**Mathematics.* Freshman year. Four or five hours.

*English (elementary).* Freshman year. Three hours.

*European History.* Three hours.

First and second terms, Sophomore or Junior year.

*Physical or Natural Science.* Some three-hour course continuous through the year.

Freshman, Sophomore, or Junior year.

*Philosophy.* Some three-hour course continuous through the year.

Sophomore, Junior, or Senior year.

NOTE: Candidates for the degree of Bachelor of Philosophy in June, 1905, are required to take English 4, 5, 6, unless they have already received credit for the course.

## FRESHMAN YEAR

I. *Required Studies.*

English 1, 2, 3. Three hours.

French A, B, C or 1, 2, 3 or } Three hours.  
German 1, 2, 3 or 24, 25, 26

Mathematics 3, 1, 2. Four hours, or

Mathematics 4, 5, 6, 7, 9, 10, 12. Five hours.

II. *Elective Studies.* Two three-hour courses running through the year must be chosen from the following list:

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

\* Five hours for students presenting for entrance Solid and Spherical Geometry and Plane Trigonometry.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French A, B, C. For students presenting no French for admission.

French 1, 2, 3. For students presenting elementary French for admission.

French 4, 5, 6. For students presenting advanced French for admission.

German 1, 2, 3. For students presenting no German for admission.

German 24, 25, 26. For students presenting elementary German for admission.

German 34, 35, 36. For students presenting advanced German for admission.

Greek 46, Latin 46, 47, (History of Greek and Roman Life and Institutions). For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission (subject to the consent of the department).

Botany 1, 2, 3. For all students.

Anatomy 15, 1, 35. For all students.

Drawing 16, 17, 18. For all students.

### SOPHOMORE YEAR

I. Required courses which must be completed by the end of the Sophomore year.

That portion of the required work in modern languages not completed in the Freshman year.

II. Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

### JUNIOR YEAR

I. Required courses which must be completed by the end of the Junior year.

The required History and Physical or Natural Science, if not previously taken.

II. Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

### SENIOR YEAR

I. All required courses not previously taken.

II. Elective courses sufficient with those taken under I. to make fifteen hours a week.

## REGULATIONS UNDER WHICH A STUDENT MAY BE PERMITTED TO TAKE A FIRST DEGREE IN LESS THAN FOUR YEARS

1. A candidate for a first degree who has passed in the required number of hours of work and all of the required subjects may, at the end of the term in which his work is completed, be excused from further attendance at the University and may receive his degree at the Commencement next following such term.

2. A candidate for a first degree who has maintained a satisfactory standing in his studies may, subject to the consent of the Committee on Admission to Advanced Standing, take work in addition to the regular number of hours provided for in the curriculum of the course which he is pursuing.

3. A candidate for a first degree may receive credit for work done elsewhere than at Brown University as follows:

(a) A candidate for admission to advanced standing who comes from an approved institution of collegiate rank may receive credit, without examination, for work done at such institution provided, first, that he present a letter of honorable dismissal from the institution which he last attended; second, that he present a detailed statement of his previous work and his standing therein, signed by the proper official. The amount of credit to be given shall be determined by the Committee on Admission to Advanced Standing.

(b) A candidate for admission to advanced standing may receive credit for any subject included in the curriculum of the course which he intends to enter, provided, first, that he notify in writing the Committee on Admission to Advanced Standing at the time he applies for admission to the University of his intention to present such subject, and second, that he pass an examination in the subject before a date set by said Committee.

(c) A candidate for a first degree may receive credit for work done at the summer school of an approved institution of collegiate rank, provided that the work have the approval of the head of the related department in Brown University. Equivalent credit for the work given at the institution in question shall be allowed at Brown University, but the total credit for work at summer schools for any one summer shall in no case exceed fifteen (15) term hours.

(d) A candidate for a first degree may, with the consent of the head of any department and with the approval of the faculty, pursue studies connected with said department during any summer in which he does not attend a summer school, and may receive credit for such studies, provided, first, that the work be under the supervision of the head of the department concerned; second, that he pass an examination in all the work before the end of the following term. The amount of credit for work of this

kind shall be determined by the head of the department, but the total credit for any one summer shall not exceed nine (9) term hours. No student will be allowed to do summer work in connection with any department of the University until he has presented to the head of the department a registration slip properly filled, and signed by the Registrar.

4. If a student at the beginning of his senior year lacks less than forty-five (45) term hours of completing his course he may, for reasons deemed sufficient by the Committee on Admission to Advanced Standing, distribute his work over the year.

5. If a student at the beginning of any term lacks less than fifteen (15) term hours of completing his course he may, for reasons deemed sufficient by the Committee on Admission to Advanced Standing, be excused from taking more than the necessary number of hours.

NOTE: Paragraphs 4 and 5 are designed to assist students who desire to pursue graduate work during their Senior year (see the rules of the Committee on Graduate Students) or who for financial or other reasons wish to do work not connected with their college course.

# ANNOUNCEMENT OF COURSES

NOTE: Descriptive notes are here given only in the case of new courses. Descriptions of the other courses will be found in the Catalogue.

*Courses listed together (e. g. Comparative Anatomy 15, 1, 35) are regarded as forming a unit, and unless specific statement to the contrary is made, the second term may not be elected without the first, nor the third without the second. This rule applies to all departments.*

## I. COMPARATIVE ANATOMY

### 15, 1, 35. *Introductory Course.*

Three hours. Six hours of attendance. Through the year. Elective for Undergraduates.

Professor GORHAM

### 3, 4, 34. *Comparative Anatomy of Vertebrates.*

Three hours. Six hours of attendance. Through the year. Elective for Sophomores, Juniors, and Seniors who have passed in 35.

Professor WILLIAMS

### 9. *Bacteriology.*

Three hours. Six hours of attendance. First Term. Elective for Juniors and Seniors.

Professor GORHAM

### 10. *Histology.*

Three hours. Six hours of attendance. Second term. Elective for Juniors and Seniors who have passed in 35.

Professor WILLIAMS

### 38. *Advanced Histology.*

Three hours. Six hours of attendance. Third Term. Elective for Juniors and Seniors who have passed in 10.

Dr. FULTON

### 2. *Invertebrate Anatomy.*

Three hours. Six hours of attendance. Third Term. Elective for students who have passed in 35. Laboratory course.

Professor WILLIAMS

### 18, 19. *Chemical Physiology.*

Three hours. Six hours of attendance. Third and First Terms. Elective for Juniors and Seniors who have passed in Chemistry 2.

Dr. SULLIVAN

**20, 21. *Physical Physiology.***

Three hours. Six hours of attendance. Second and Third Terms. Elective for Juniors and Seniors who have passed in 19.

Dr. SULLIVAN

**16, 17, 30. *Anatomy of the Nervous System.***

Three hours. Six hours of attendance. Through the year. Elective for Juniors and Seniors who have passed in 35. Not to be offered in 1905-06. Alternates with 31, 32, 33.

Professor MEAD

**[31, 32, 33. *Comparative Embryology.*]**

Three hours. Six hours of attendance. Through the year. Elective for Juniors and Seniors who have passed in 35. Not offered in 1904-05. Alternates with 16, 17, 30.

Professor MEAD

**25. *Biological Theories and Biological Problems.***

Weekly seminary. Through the year. Elective for Graduates.

Professor MEAD

**27. *Advanced Bacteriology.***

Through the year. Elective for Graduates. Laboratory work and seminary.

Professor GORHAM

**28. *Advanced Physiology.***

Through the year. Elective for Graduates who have sufficient knowledge of chemistry and physiology. Laboratory work and seminary.

Dr. SULLIVAN

**29. *Human Anatomy.***

Through the year. Elective for Graduates. Laboratory instruction.

Dr. PERKINS and Dr. PEGRAM

## II. ART

Professor POLAND.

**NOTE:** Courses 1, 4, and 6 may be taken independently, but students are advised to elect all three in the above order, in which order they form a consecutive outline of the history of art. Students are strongly advised to take 1, if possible, before any other course in the history of art. Courses 7, 9 follow consecutively after 6. Courses 10, 11, and 3 are critical courses in classical archæology, especially designed for those who wish to do advanced work in classical archæology, philology, or history.

**1. *Ancient Art or Classical Archæology.***

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.

**4. *Roman, Early Christian, and Mediæval Art.***

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

**6. *Art of the Renaissance.***

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.

**14, 15, 16. *Practical Work in Art.***

Three hours. Through the year. Elective for students who are taking, or who have passed in Art 1, 4, 6, and who have also passed in Drawing 2, 3, 4, or have equivalent proficiency in drawing. Given at the Rhode Island School of Design.

**7, 9. *Modern Art.***

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates who have passed in 6.

**8. *Theory and Criticism of the Fine Arts.***

Three hours. Third Term. Elective for students who have passed in any course in Art.

**[10. *Seminary in Classical Architecture.*]**

Elective for Graduates. Not offered in 1904-05.

**[11. *Seminary in Greek and Roman Sculpture.*]**

Elective for Graduates. Not offered in 1904-05.

**3. *Seminary Study of the Acropolis of Athens.***

Three hours. First Term. Elective for Graduates who read Greek and Latin.

**[12. *Seminary in Renaissance Art.*]**

Elective for Graduates. Not offered in 1904-05.

### III. ASTRONOMY

**1, 2, 6. *General Course.***

Three hours. Through the year. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

Professor UPTON [This year Professor SLOCUM]

**3, 4, 5. *Geodetic Astronomy.***

Three hours. Through the year. Required of Engineering students. Elective for Juniors and Seniors who have passed in Mathematics 1, 2, 3.

Professor SLOCUM

**17, 18, 19. Nautical Astronomy.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors who have passed in Mathematics 1, 2, 3.

Professor SLOCUM

NOTE: Courses 3, 4, 5 and 17, 18, 19 cover in part the same ground and cannot both be taken by the same student, but either can be taken at the same time as the general course, 1, 2, 6.

**[8, 9, 10. Practical Astronomy.]**

Three hours. Through the year. Elective for Graduates, and for Undergraduates who have shown special aptitude in either 1, 2, 6, or 3, 4, 5. Not offered in 1904-05.

Professor UPTON

**[14, 15, 16. Mathematical Astronomy.]**

Three hours. Through the year. Elective for Graduates. Not offered in 1904-05.

Professor UPTON

**IV. BIBLICAL LITERATURE AND HISTORY****HEBREW****1, 2, 3. Elementary Hebrew.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor FOWLER and Mr. BRAUN

**16, 17, 18. Historical Hebrew.**

Three hours. Through the year. Elective for students who have completed Hebrew 1, 2, 3.

Professor FOWLER and Mr. BRAUN

**13, 14, 15. Hebrew Seminary.**

Three hours. Through the year. Elective for Graduates and approved Undergraduates.

Professor FOWLER

**ARAMAIC AND TALMUDIC****1, 2, 3. Aramaic and Talmudic.**

Two hours. Through the year. Elective for Seniors and Graduates who have completed Hebrew 1, 2, 3.

Mr. BRAUN

**ARABIC****1, 2, 3. Elementary Arabic.**

Two hours. Through the year. Elective for Seniors and Graduates.

Professor FOWLER

## NEW TESTAMENT LANGUAGE AND LITERATURE

[7, 6, 3. *Acts and Pauline Epistles.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05.

Professor FOWLER

5, 1, 2. *Gospels and Epistles.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected separately.

Professor FOWLER

## BIBLICAL LITERATURE AND HISTORY IN ENGLISH

NOTE: Courses 1-6 below are designed not only as a foundation for special Biblical work, but also as a means of liberal culture. They form a two-years' consecutive course, giving a comprehensive view of the entire field of Biblical history and literature.

4, 5, 6. *Hebrew History and Literature.*

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Each term may be elected separately.

Professor FOWLER

[1, 2, 3. *Jewish and Early Christian History and Literature.*]

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Each term may be elected separately. Not offered in 1904-05.

Professor FOWLER

7, 8, 9. *Biblical Seminary in English.*

Three hours. Through the year. Elective for Graduates and approved Juniors and Seniors.

Professor FOWLER

## V. BOTANY

1, 2, 3. *General Morphology, Physiology, and Ecology.*

Three hours. Six hours of attendance. Through the year. Elective for Undergraduates.

Professor BAILEY and Mr. COLLINS

[4, 5. *Histology and Physiology.*]

Three hours. Six hours of attendance. First and Second Terms. Elective for Students who have passed in 1, 2, 3. Not offered in 1904-05.

Mr. COLLINS

[14. *Medical Botany.*]

Three hours. Five hours of attendance. Third Term. Elective for students who have passed in 5. Not offered in 1904-05.

Mr. COLLINS

NOTE: 4, 5, 14, to be offered in 1905-06, alternate with 7, 12, 9.

**7. Lower Cryptogams.**

Three hours. Six hours of attendance. First Term. Elective for students who have passed in 3.

Mr. COLLINS

**12. Higher Cryptogams.**

Three hours. Six hours of attendance. Second Term Elective for students who have passed in 7.

Mr. COLLINS

**9. Mycology.**

Three hours. Six hours of attendance. Third Term. Elective for students who have passed the required examinations.

Mr. COLLINS

**VI. CHEMISTRY****1, 2, 3. Descriptive Chemistry.**

Three hours. Through the year. Elective for Undergraduates.

Professor BUCHER and Messrs. BABASINIAN and SMITH

**4. Qualitative Analysis.**

Three hours. Six hours of attendance. First Term. Elective for Juniors.

Professor APPLETON and Mr. INCE

**5. Qualitative Analysis, continued.**

Three hours. Six hours of attendance. Second Term. Elective for Juniors.

Professor APPLETON and Mr. INCE

**6. Quantitative Analysis.**

Three hours. Six hours of attendance. Third Term. Elective for Juniors.

Professor APPLETON and Mr. INCE

**7, 8, 9. Quantitative Analysis, advanced.**

Six hours. Twelve hours of attendance. Through the year. Elective for Seniors and Graduates who have passed in 1-6.

Professor APPLETON and Mr. INCE

**10, 11, 12. Organic Chemistry.**

Six hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor BUCHER and Mr. BABASINIAN

**13. Assaying.**

Six hours. Twelve hours of attendance. Third Term. Elective for Seniors and Graduates who have passed in 1-6.

Professor APPLETON and Mr. INCE

*23. Dyeing of Cotton, Wool, and Silk.*

Six hours. Twelve hours of attendance. Third Term. Elective for Seniors and Graduates.

Professor APPLETON and Mr. INCE

*31, 32, 33. Industrial Chemistry.*

Through the year. Elective for Graduates. Each term may be elected separately.

Professor APPLETON

*[41, 42, 43. Physical Chemistry.]*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05.

Professor BUCHER

*51, 52. Organic Chemistry, advanced course.*

Elective for Graduates. Not to be offered in 1905-06.

Professor BUCHER

*63. Inorganic Chemistry, advanced course.*

Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

Professor BUCHER

*71, 72, 73. Organic Preparations, advanced course.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor BUCHER

*81, 82, 83. Inorganic Preparations, advanced course.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor BUCHER

*91, 92, 93. Research Work in Chemistry.*

Three hours. Through the year. Elective for Graduates.

Professor BUCHER

*101, 102, 103. Conference on Special Topics in Chemistry.*

One hour. Through the year. Elective for approved students.

Professor BUCHER

*111, 112, 113. Conference on Special Topics in Chemistry.*

One hour. Through the year. Elective for approved students.

Professor APPLETON

## VII. DRAWING

*1. Elementary Mechanical Drawing.*

Four hours. Two hours of recitation and six hours of drawing. First Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering.

Professor RANDALL and Mr. BROOKS

**16. Elementary Mechanical Drawing.**

Three hours. Six hours of drawing. First Term. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy, and for Sophomores, Juniors, and Seniors.

Professor RANDALL and Mr. BROOKS

**5. Descriptive Geometry.**

Four hours. Three hours of recitation and three hours of drawing. Second Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. Elective for students who have passed in 1.

Professor RANDALL

**6. Descriptive Geometry.**

Four hours. Three hours of recitation and three hours of drawing. Third Term. Required of Freshmen who are candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. Elective for students who have passed in 5.

Professor RANDALL

**17. Descriptive Geometry.**

Three hours. Two hours of recitation and two hours of drawing. Second Term. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy, and for Sophomores, Juniors, and Seniors who have passed in 1 or 16.

Professor RANDALL

**18. Descriptive Geometry.**

Three hours. Two hours of recitation and two hours of drawing. Third Term. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy, and for Sophomores, Juniors, and Seniors who have passed in 17.

Professor RANDALL

**7. Shades and Shadows and Perspective.**

Three hours. Two hours of recitation and two hours of drawing. First Term. Elective for students who have passed in 6 or 18.

Professor RANDALL

**14. Shades and Shadows and Perspective, advanced course.**

Three hours. Six hours of drawing. Elective for students who have passed in 7.

Professor RANDALL

**8. Elementary Machine Drawing.**

Three hours. Six hours of drawing. Elective for students who have passed in 5, 6, or 17, 18.

Mr. BROOKS

**10. Machine Drawing.**

Three hours. One hour of recitation and eight hours of drawing. First Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 5, 6 or 17, 18.

Mr. BROOKS

**11. *Machine Drawing.***

Three hours. One hour of recitation and eight hours of drawing. Second Term. Required of candidates for the degree of Mechanical Engineer. Elective for students who have passed in 8 or 10.

Mr. BROOKS

**12. *Elements of Machine Design.***

Three hours. One hour of recitation and five hours of drawing. Third Term. Elective for students who have passed in 10, 11.

Mr. BROOKS

**15. *Constructive Geometry.***

Three hours. Six hours of drawing. May be taken in any term. Elective for students who have passed in 1 or 16.

Professor RANDALL and Mr. BROOKS

**19. *Mechanical Drawing, practical.***

Three hours. Six hours of drawing. Second Term. Elective for students who have passed in 16.

Mr. BROOKS

**20. *Mechanical Drawing, practical.***

Three hours. Six hours of drawing. Third Term. Elective for students who have passed in 19.

Mr. BROOKS

**21, 22. *Architectural Drawing.***

Three hours. Six hours of drawing. Second and Third Terms. Elective for Sophomores, Juniors, and Seniors who have passed in Drawing 7. Given at the Rhode Island School of Design.

Professor HOMER of the Rhode Island School of Design

**2, 3, 4. *Freehand Drawing.***

One hour. Two hours of drawing. Through the year. Elective for all students. Given at the Rhode Island School of Design.

Professor BLANCHARD, MESSRS. TOLMAN and NISBET

## VIII. CIVIL ENGINEERING

*All courses in this department are required of candidates for the degree of Bachelor of Science in Civil Engineering; all except 25, 26, 27 are elective for other students.*

**1, 2, 3. *Surveying.***

Three hours. Usually six hours of field work or drafting. Through the year. Elective for students who have passed in Mathematics 1, 2, and 3 and in Drawing 1 or 16.

Professors HILL and BLANCHARD

*4. Topographical Drawing.*

Three hours. Six hours of drafting. Second Term. Elective for Juniors and Seniors who have passed in Drawing 1 or 16.

Professor BLANCHARD

*8, 8a. Surveying, advanced course.*

One hour and three hours. Third Term. Elective for students who have passed in 1 and 2.

Professors HILL and BLANCHARD

*5, 5a, 6, 7. Railroad Engineering.*

Two, four (eight hours of field work), three, and three hours. First, Second, and Third Terms. Elective for students who have passed in 3 and 8.

Professors HILL and BLANCHARD

*10. Hydraulic Engineering.*

Three hours. Second Term. Elective for Juniors and Seniors.

Professor HILL

*11. Hydraulic Engineering.*

Three hours. Third Term. Elective for students who have passed in Mathematics 13 and Mechanics 4.

Professor HILL

*16. Geodesy.*

Three hours. One hour of recitation and five hours of computation. Second Term. Elective for students who have passed in 3 and 8 and Astronomy 4.

Professor HILL

*17. Sanitary Engineering.*

Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4, and Drawing 6.

Professor HILL

NOTE: Courses 10, 11, and 17 cover the general subject of sanitation.

*18. Roads and Pavements.*

Three hours. Third Term. Elective for Sophomores, Juniors, and Seniors.

Professor BLANCHARD

*[19, 20, 21. Laboratory Investigations.]*

Three hours. Through the year. Elective for students who have passed in Mathematics 13, Mechanics 4, and Drawing 6. Not offered in 1904-05.

Professor HILL

*25, 26, 27. Lettering.*

One hour. Two hours of drafting. Through the year.

Professor HILL

[28. *Simple Framed Structures.*]

Three hours. Third Term. Elective for students who have passed in Mathematics 13, Mechanics 4, and Drawing 1 or 16. Not offered in 1904-05.

Professor BLANCHARD

29. *Structural Details.*

Three hours. First Term. Elective for students who have passed in Mathematics 13, Mechanics 6, and Drawing 1 or 16.

Professor BLANCHARD

30. *Roof Design and Graphic Statics.*

Three hours. Six hours of drafting. First Term. Elective for students who have passed in 28.

Professor BLANCHARD

31. *Bridge Design.*

Six hours. Twelve hours of drafting. Second Term. Elective for students who have passed in 30.

Professor BLANCHARD

32. *Higher Framed Structures.*

Two hours. Third Term. Elective for students who have passed in 28.

Professor BLANCHARD

34. *Mineralogy.*

Three hours. Third Term. Elective for Juniors and Seniors.

Professor BLANCHARD

35. *Municipal Improvements.*

Three hours. First Term. Elective for Juniors and Seniors. Offered only if ten or more elect the course.

Professor HILL

36, 37. *Masonry Structures.*

One hour. Three hours. One hour of recitation and four hours of drafting. Second and Third Terms. Elective for students who have passed in Mechanics 6 and Drawing 6.

Professor BLANCHARD

38. *Foundations.*

Two hours. Second Term. Elective for students who have passed in Mechanics 6.

Professor BLANCHARD

39. *Contracts and Specifications.*

One hour. Third Term. Elective for students in Mechanical and Electrical Engineering.

Professor BLANCHARD

*Thesis.* A graduation thesis on a professional subject is required of every candidate for the degree of Civil Engineer. The thesis must embody either a design or a review of an engineering plant, appliance, process or structure, or the results of an experimental investigation.

## IX. MECHANICAL ENGINEERING

*All courses in this department are required of candidates for the degree of Bachelor of Science in Mechanical Engineering. Though courses 10 to 16 are all open to Sophomores, Juniors, and Seniors, no more than two of them may be counted towards the degree of Bachelor of Arts or Bachelor of Philosophy.*

### 10, 11, 12. *Wood-work.*

Three hours. Six hours of attendance. Elective for Sophomores, Juniors, and Seniors who have passed in Drawing 1, 5, 6 or 16, 17, 18.

Mr. CADY

### 13, 14, 15, 16. *Metal-work.*

Three hours. Six hours of attendance. Elective for Sophomores, Juniors, and Seniors who have passed in Drawing 1, 5, 6 or 16, 17, 18.

Mr. CADY

### 20, 21, 22, 23. *Kinematics.*

Three hours. Third, First, Second, and Third Terms. Elective for students who have passed in Drawing 10, 11.

Mr. BROOKS

### 24, 25, 26, 27. *Machine Design.*

Three hours. Six hours of attendance. First, Second, and Third Terms. Elective for students who have passed in 20, 21, 22, 23 and Mechanics 3, 4, 6.

Mr. BROOKS

### 30, 31, 32. *Steam Engineering.*

Three hours. First, Second, and Third Terms. Elective for students who have passed in or are taking 33, 34, 35.

Professor KENERSON

### 33, 34, 35. *Thermodynamics.*

Three hours. First, Second, and Third Terms. Elective for students who have passed in Physics 1, 2, 4 and Mathematics 12, 13, 14 or 41, 42, 43.

Professor KENERSON

### 40, 41. *Materials of Engineering.*

Three hours. First and Second Terms. Elective for students who have passed in Mechanics 3, 4, 6.

Professor KENERSON and Mr. —————

### 42. *Power Plant Engineering.*

Three hours. Third Term. Elective for students who have passed in 30, 31, 32.

Professor KENERSON

### [43. *Engineering Laboratory, advanced course.*]

Three hours. First Term. Not offered in 1904-05.

Professor KENERSON

*Thesis.* A graduation thesis is required of all students who are candidates for the degree of Bachelor of Science in Mechanical Engineering. It may be based either on extended independent study, on original experiments by the student, or on an original design of some complicated machine. In any case it must exhibit satisfactory ability in the student as an engineer.

## MECHANICS

Professor CLARKE

### 3, 4, 6. *Mechanics of Solids.*

Three hours. Through the year. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. Elective for students who have passed in Mathematics 9, 10 and 12, and who are taking Mathematics 13.

### 7, 8. *Mechanics of Fluids.*

Three hours. First and Second Terms. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. Elective for students who have passed in 3, 4, 6.

NOTE: Courses 3, 4, 6, and 7, 8 cover essentially the same ground as Church's *Mechanics of Engineering*, supplemented by a large number of original problems illustrative of the principles under the different conditions which arise in their application.

## X. ENGLISH LITERATURE AND LANGUAGE

*No student who has not credit for entrance English will be admitted to any English course.*

### 1, 2, 3. *Rhetoric and Composition.*

Three hours. Through the year. Required of all Freshmen.

Professors DAMON, BENEDICT, and HUNTINGTON, Messrs. LATHAM,  
HASTINGS, PHILLIPS, and GROSE

### 22, 23, 24. *English Composition, second course.*

Three hours. Through the year. Two hours of class-room work and one hour of consultation. Elective for Sophomores who have passed in 1, 2, 3.

Lectures, recitations, fortnightly themes, and other written exercises at the pleasure of the instructor. Designed for Sophomores who wish to supplement the practice given in 1, 2, 3. Main emphasis laid on the acquirement of a clear and accurate style.

Professor BENEDICT and Mr. LATHAM

**4, 5, 6. Argumentative Composition.**

One hour. Through the year. Required of all candidates for the degree of Bachelor of Arts or Bachelor of Philosophy in the class of 1905 who have not already received credit for the course.

Messrs. LATHAM and PHILLIPS

**28, 29, 30. Argumentative Composition.**

Three hours. Through the year. Third hour devoted, at the option of the instructor, to consultation.

Study of the principles and forms of argumentative composition. Lectures, written exercises, briefs, forensics, and less formal arguments. Intended to furnish a more thorough training than English 4, 5, 6, especially in persuasion. Six long pieces of work required, at least two of which will be forensics preceded by briefs.

Professor HUNTINGTON, Messrs. LATHAM and PHILLIPS

**11, 12. Debate.**

Three hours. Second and Third Terms. Elective for a limited number of Juniors and Seniors who have taken one or more terms of either 4, 5, 6 or 28, 29, 30. With the consent of the instructor, the course may be repeated.

Professor HUNTINGTON, with the co-operation of the Professors of Political Economy, Social and Political Science, History, and Public Speaking.

NOTE: Seniors may substitute 11 for 5, 6.

**7, 8, 9. English Composition, advanced course.**

Three hours. Through the year. Elective for Juniors and Seniors, and for Sophomores who have passed with distinction in 1, 2, 3. With the consent of the instructor, the course may be repeated.

Professor DAMON

**13, 14, 15. Public Speaking.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors.

Professor CROSBY

**[76, 77, 78. Public Speaking, advanced course.]**

One hour. Through the year. Elective for a limited number of Seniors. Not offered in 1904-05.

Professor CROSBY

**16, 17, 18. English Literature, introductory course.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors.

Professor BRONSON

**[19, 20, 21. Old English.]**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05.

Professor POTTER

**25, 26, 27. Chaucer.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

Professor POTTER

**NOTE:** Advanced courses in Old English, Middle English, and Historical Grammar will be offered by Professor Potter according to the needs of qualified students.

**31, 32, 33. English Literature, exclusive of the Drama, from 1400 to 1600.**

Three hours. Through the year. Elective for students who have passed in one course in English literature. Not to be offered in 1905-06.

Professor BENEDICT

**[37, 38, 39. History of the Drama in England.]**

Three hours. Through the year. Elective for students who have passed in one course in English literature. Not offered in 1904-05.

Professor POTTER

**40, 41, 42. Shakspere, linguistic course.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Not to be offered in 1905-06.

Professor POTTER

**67, 68, 69. Shakspere, literary course.**

Three hours. Through the year. Elective for Juniors and Seniors.

Professor POTTER

**[34, 35, 36. English Literature, exclusive of the Drama, from 1600 to 1660.]**

Three hours. Through the year. Elective for students who have passed in one course in English literature. Not offered in 1904-05.

Professor BRONSON

**46, 47, 48. English Literature from 1660 to 1798.**

Three hours. Two meetings a week, and a third meeting at the pleasure of the instructor. Through the year. Elective for students who have passed in one course in English literature. Not to be offered in 1905-06.

Professor BRONSON

**[49, 50, 51. English Literature from 1798 to 1832.]**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Not offered in 1904-05.

Professor BENEDICT

**[52, 53, 54. English Literature from 1832 to 1892.]**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Not offered in 1904-05.

Professor POTTER

**43, 44, 45. English Prose of the Nineteenth Century.**

Three hours. Through the year. Two meetings a week, and a third meeting at the pleasure of the instructor. Elective for Sophomores, Juniors, and Seniors.

A survey course, in which the greater prose writers are studied with some minuteness and the lesser writers sufficiently to bring out the characteristics of the period. Stress laid on the influence of the various social and intellectual tendencies of the period upon style and substance. The transition from romanticism to realism, the influence of the scientific spirit, the partial return to romanticism.

Professor DAMON

**55, 56, 57. Victorian Poets.**

Three hours. Through the year. Elective for students who have passed in one course in English literature. Not to be offered in 1905-06.

Professor CROSBY

**61, 62, 63. American Literature.**

Three hours. Through the year. Elective for students who have passed in one course in English literature.

Professor SEARS

**64, 65, 66. Seminary in English Literature.**

Three hours. Through the year. Elective for Graduates, and for a limited number of Seniors who have passed with credit in two or more courses in English literature.

Subject in 1904-05: The history of literary criticism in England.

Professor BRONSON

**73. Methods of Teaching English.**

One hour. First Term. Elective for Seniors and Graduates who intend to teach English. Not counting towards a degree.

Professors BRONSON and DAMON

## XI. GERMANIC LANGUAGES AND LITERATURES

### GERMAN

**1, 2, 3. Introductory Course.**

Three hours. Through the year. Required of all students not presenting German for admission.

Messrs. NORRIS and ASHLEY

**24, 25, 26. Intermediate Course.**

Three hours. Through the year. Required of all Freshmen presenting elementary German for admission.

Messrs. NORRIS and STEWART

**4, 6, 8. *Drama of the Classic Period.***

Three hours. Through the year. Elective for students who have passed in 1, 2, 3.

Professor JONAS and Mr. STEWART

**5, 7, 9. *Modern Prose.***

Three hours. Through the year. Elective for students who have passed in 1, 2, 3.

Professor JONAS

**34, 35, 36. *Advanced Course in Standard Authors.***

Three hours. Through the year. Elective for students who have passed in 24, 25, 26, and for those presenting advanced German for admission.

Mr. STEWART

**40, 41, 42. *Composition.***

One hour. Through the year. Elective only for students pursuing the regular courses of the second or third year in German and for those who have passed in 48.

Mr. STEWART

**[43, 44, 45. *Advanced Composition.*]**

One hour. Through the year. Elective for students who have passed in 42 and who are pursuing or have completed a third year course. Not offered in 1904-05.

Professor JONAS

**46, 47, 48. *German Masterpieces I.***

Three hours. Through the year. Elective for students who have passed in 8 or 36. Not to be offered in 1905-06.

Goethe's *Faust.*

Professor CROWELL [This year Professor JONAS]

**[49, 50, 51. *German Masterpieces II.*]**

Three hours. Through the year. Elective for students who have passed in 8 or 36. Not offered in 1904-05.

Professor CROWELL

**16, 17, 18. *German Literature.***

Three hours. Through the year. Elective for students who have passed in 36, 48, or 51.

Herder, Lessing, Schiller, and Goethe.

Mr. STEWART

**[10, 11, 12. *Middle High German.*]**

Three hours. Through the year. Elective for students who have passed in 18, 48, or 51. Not offered in 1904-05.

Professor CROWELL

**[28, 29, 30. *Germanic Mythology.*]**

One hour. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05.

Professor CROWELL

**31, 32, 33. Germanic Philology.**

One hour. Through the year. Elective for Graduates. Not to be offered in 1905-06.

Professor CROWELL [This year Professor JONAS]

**[52, 53, 54. German Poetry.]**

Three hours. Through the year. Elective for students who have passed in 48 or 51. Not offered in 1904-05.

Professor JONAS

**[61, 62, 63. Research Course in German Literature.]**

Three hours. Six hours of attendance in the Seminary Library. Through the year. Elective for students who have passed in 18 or 48 or 51. Not offered in 1904-05.

Professor CROWELL

**OLD NORSE****[1, 2, 3. Old Norse.]**

Two hours. Through the year. Elective for Graduates. Not offered in 1904-05.

Professor CROWELL

**GOTHIC****1, 2, 3. Gothic.**

Two hours. Through the year. Elective for Graduates.

Professor CROWELL [This year Professor JONAS]

**XII. GREEK LITERATURE AND HISTORY****A, B, C. Elementary Course.**

Three hours. Through the year.

See the explanatory note in the Catalogue.

Mr. —————

**1. Lysias.**

Three hours. First Term. Elective for students who presented elementary and advanced Greek for admission or who have taken Greek A, B, C and the additional work indicated under the title of that course in the Catalogue.

Professors MANATT and ALLINSON

**2. Plato.**

Three hours. Second Term. Elective for students who have taken Greek 1 or its equivalent.

Professors MANATT and ALLINSON

**3. Homer.**

Three hours. Third Term. Elective for students who have taken Greek 1 and 2 or equivalents.

Professors MANATT and ALLINSON

46. *Greek Life.*

Three hours. First Term. Elective for Freshmen and Sophomores.  
 Professor MANATT

NOTE: This course is continued in the Second and Third Terms as Roman Literature and History 46, 47. The three terms together constitute the course called History of Greek and Roman Life and Institutions.

[47. *Greek Literature.*]

Three hours. First Term. Elective for Freshmen and Sophomores.  
 Not offered in 1904-05.

Professor MANATT

4. *Greek Lyric Poets.*

Three hours. First Term. Elective for Sophomores.

Professor MANATT

6. *Dramatic Poets.*

Three hours. Second Term. Elective for Sophomores.

Professor ALLINSON

5. *Lucian.*

Three hours. Third Term. Elective for Sophomores.

Professor ALLINSON

[7, 8, 9. *Historians.*]

Three hours. Through the year. Elective for Juniors and Seniors who have completed 1-6 or equivalent work. Not offered in 1904-05.

Professor MANATT

[10. *Isæus.*]

Three hours. First Term. Elective for students who have completed 1-6 or equivalent work. Not offered in 1904-05.

Professor MANATT

[11. *Demosthenes.*]

Three hours. First Term. Elective for Graduates. Not offered in 1904-05.

Professor MANATT

[12. *Demosthenes.*]

Three hours. Second Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor MANATT

[13, 14, 15. *Homer.*]

Three hours. Through the year. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor MANATT

16. *Plato and Aeschylus.*

Three hours. First Term. Elective for Juniors and Seniors.

Professor ALLINSON

[45. *The Drama.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor ALLINSON

[18. *Pindar and Bacchylides.*]

Three hours. Third Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor MANATT

23, 24. *Modern Greek.*

One hour. Second and Third Terms. Elective for Sophomores, Juniors, and Seniors.

Professor MANATT

[28. *Lucian.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor ALLINSON

43, 47. *Greek Composition.*

One hour. Second and Third Terms. Elective for Sophomores, Juniors, and Seniors.

Professor ALLINSON

25, 26. *Herodotus and Thucydides.*

Three hours. Second and Third Terms. Elective for Juniors and Seniors.

Professor MANATT

[32. *Attic Orators.*]

Two hours. First Term. Elective for Graduates and approved Seniors. Not offered in 1904-05.

Professor MANATT

34, 35, 36. *Greek Seminary.*

One two-hour session weekly. Through the year. Elective for Graduates and approved Seniors.

First Term, (a) Theocritus.

Second Term, (b) Euripides or Plato.

Third Term, (a) Bacchylides and Herondas, or (b) Seminary in Comparative Philology. See Indo-European Philology 7.

Professor MANATT (a) and Professor ALLINSON (b)

[41, 42. *Homer and Mycenæan Archaeology.*]

Two hours. First and Second Terms. Elective for Graduates and approved Seniors. Not offered in 1904-05.

Professor MANATT

*Harkness Classical Club.* Meetings are held once a month for the reading of papers and for discussion. Arrangements also are made from time to time for public addresses. The membership is open to Graduates and Undergraduates.

### XIII. HISTORY

NOTE: The elective courses in History are regularly open only to those who have passed in Courses 1 and 2; but, by special permission of the instructor, elective courses may be taken by Juniors and Seniors who are taking at the same time Courses 1 and 2. The only elective course in History open to Sophomores is Course 40.

#### EUROPEAN HISTORY

##### 1, 2. *Mediæval and Modern History of Europe.*

Three hours. First and Second Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy in either the Sophomore or the Junior year.

A general survey of the history of western Europe from the time of the barbarian invasions to the Napoleonic wars. Work based upon a narrative text-book, supplemented by lectures, frequent written tests, and written reports and abstracts on assigned reading and topics for special investigation.

Professor MACDONALD

##### 18. *Spanish History.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.  
Professor MUNRO

##### 15. *Islam and the Crusades.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

Professor MUNRO

##### 11. *Period of the Renaissance.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.  
Professor MUNRO

##### 3. *Period of the Reformation.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

Professor MUNRO

##### 16. *The French Revolution.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.  
Professor MUNRO

##### 40. *European History since 1815.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates, and for Sophomores who have taken courses 1 and 2.

Professor MUNRO

##### *Seminary in European History.*

One hour. Through the year. Elective for Graduates and approved Seniors.

Professor MUNRO

[19, 20, 21. *English Constitutional and Political History to 1689.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05. To be offered in 1905-06.

Professor MUNRO

22, 23, 24. *English Constitutional and Political History since 1689.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor MUNRO

34, 35, 36. *Research Course in English History.*

Three hours. One hour of class-room attendance. Through the year. Elective for Graduates and approved Seniors.

Professor MUNRO

NOTE: Courses 34, 35, 36 are repeated from year to year with change of subject matter.

### AMERICAN HISTORY

25, 26, 27. *American History to 1787.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

Professor MACDONALD

[28, 29, 30. *Constitutional and Political History of the United States since 1787.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05. To be offered in 1905-06.

Professor MACDONALD

37, 38, 39. *Research Course in American History.*

Three hours. One hour of class-room attendance. Through the year. Elective for Graduates and approved Seniors.

Professor MACDONALD

31, 32, 33. *Principles of Historical Criticism and Research.*

One hour. Through the year. Elective for Graduates of one year's standing. Required of all candidates for the degree of Doctor of Philosophy in History.

Professor MACDONALD

### XIV. MATHEMATICS

NOTE: With the exception of courses 8, 11, and 30, the Mathematical courses should be taken in the following order: 3, 1, 2, 9, 10, 12, 13, 14, 31, 15, 16, 17. Courses 8, 11, and 30 may be taken any time after the Freshman year. Courses 38, 39, 40, 41, 42, 43 are designed for students who are taking or who intend to take engineering courses. Courses 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32, 33, 34 are designed for Graduates.

### *3. Algebra.*

Four hours. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who did not present Solid Geometry and Plane Trigonometry for admission.

Professor MANNING, Messrs. FREEMAN and HART

### *1. Geometry, Solid and Spherical.*

Four hours. Second Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who did not present Solid Geometry and Plane Trigonometry for admission.

Professors DAVIS and MANNING, Messrs. CURRIER and CORNELL

### *2. Trigonometry.*

Four hours. Third Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who did not present Solid Geometry and Plane Trigonometry for admission.

Messrs. CORNELL and FREEMAN

### *4. Spherical Trigonometry.*

One hour. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. Elective for students who have passed in 2 and who have not had Spherical Trigonometry.

Professor DAVIS

### *5, 6, 7. Algebra.*

One hour. First Term. Two hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission.

Messrs. FREEMAN and HART

### *8. Determinants and Theory of Equations.*

Three hours. Second Term. Elective for students who have passed in 3 or 5, 6, 7.

Mr. CURRIER

### *3<sup>o</sup>. Algebra.*

Six hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering.

Messrs. CURRIER, CORNELL, and HART

### *39. Trigonometry, Plane and Spherical.*

Six hours. Second Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering.

Messrs. CORNELL, FREEMAN, and HART

**40. Analytic Geometry.**

Six hours. Third Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering.

Professor DAVIS, Messrs. CURRIER and HART

**41. Differential Calculus.**

Five hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering.

Professor DAVIS and Mr. CURRIER

**42, 43. Integral Calculus.**

Three hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering.

Professor DAVIS and Mr. CURRIER

**9; 10. Analytic Geometry.**

Three hours. First and Second Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. Elective for students who have passed in 1, 2, and 3.

Professor DAVIS

**11. Modern Methods of Analytic Geometry.**

Three hours. Third Term. Elective for students who have passed in 10.

Professor MANNING

**[30. Solid Analytic Geometry.]**

Three hours. Third Term. Elective for students who have passed in 10. Not offered in 1904-05.

Professor MANNING

**12. Differential Calculus.**

Three hours. Third Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. Elective for students who have passed in 10.

Professor DAVIS

**13. Integral Calculus.**

Three hours. First Term. Elective for students who have passed in 12.

Professor DAVIS

**14. Applications of the Differential Calculus.**

Three hours. Second Term. Elective for students who have passed in 12 and 13.

Professor DAVIS

**31. Application of the Integral Calculus.**

Three hours. Third Term. Elective for students who have passed in 13.

Professor MANNING

**15, 16, 17. Differential Equations.**

Three hours. Through the year. 15 and 16 are required of candidates for the degree of Bachelor of Science in Electrical Engineering. Elective for students who have passed in 13.

Professor MANNING

**[18, 19, 20. General Theory of Curves and Surfaces.]**

Three hours. Through the year. Elective for Graduates and approved Seniors. Not offered in 1904-05.

Professor MANNING

**21, 22, 23. Theory of Functions.**

Three hours. Through the year. Elective for Graduates and approved Seniors.

Professor MANNING

**[24, 25, 26. Differential Equations, advanced course.]**

Three hours. Through the year. Elective for Graduates who have passed in 23. Not offered in 1904-05.

Professor MANNING

**27, 28, 29. Advanced Algebra.**

Three hours. Through the year. Elective for Graduates and for approved Seniors.

Professor MANNING

**[32, 33, 34. Foundations of Geometry, Non-Euclidean Geometry, and Hyper-Space.]**

Three hours. Through the year. Elective for Graduates and for approved Seniors. Not offered in 1904-05.

Professor MANNING

**NOTE:** Two or three of the courses 18-34 are offered each year according to the requirements of the students. For those who have taken them all, other courses can usually be arranged.

## XV. INDO-EUROPEAN PHILOLOGY

Professor ALLINSON

**[1. General Introduction to the Study of Language.]**

Three hours. Third Term. Elective for Freshmen and Sophomores. Not offered in 1904-05.

**4, 5, 6. Sanskrit, elementary.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

**7. Seminary in Comparative Philology.**

One two-hour session weekly. Third Term. Elective for Graduates and approved Seniors.

[10, 11, 12. *Sanskrit, advanced course.*]

One hour. Through the year. Elective for students who have passed in 4, 5, 6 or an equivalent. Not offered in 1904-05.

## XVI. PHILOSOPHY

**NOTE:** Some three-hour, three-term course in this department is required of every candidate for the degree of Bachelor of Arts or Bachelor of Philosophy. The courses in Education, however, cannot be taken to satisfy this requirement.

### PHILOSOPHY AND PSYCHOLOGY

**19, 27, 43. *Logic.***

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors.

Professor MEIKLEJOHN

**2, 3, 4. *Psychology, introductory course.***

Three hours. Through the year. Elective for Juniors.

Professor DELABARRE

**20, 21, 22. *Psychology, advanced course.***

Three hours. Through the year. Elective for Seniors and Graduates.

Professor DELABARRE

**29, 30, 31. *Experimental Psychology, introductory laboratory course.***

Three hours. Six hours of attendance. Through the year. Elective for Juniors, Seniors, and Graduates who have taken or are taking 2, 3, 4.

Professor DELABARRE and Mr. HALL

**39, 40, 41. *Experimental Psychology, advanced and original laboratory work.***

Through the year. Elective for students who have taken 29, 30, 31. This course may be taken for any number of hours up to six in the case of Undergraduates, or more in the case of Graduates, with double the number of hours of attendance.

Professor DELABARRE and Mr. HALL

**8, 9, 10. *History of Philosophy.***

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor EVERETT

**5, 23. *Theoretical Ethics.***

Three hours. First and Second Terms. Elective for Seniors and Graduates.

Professor EVERETT

**44. Practical Ethics.**

Three hours. Third Term. Elective for Juniors.

President FAUNCE

**[26. Outlines of the History of Religion.]**

Two hours. Second Term. Elective for Seniors and Graduates. Not offered in 1904-05.

Professor EVERETT

**24. Philosophy of Religion.**

Three hours. Third Term. Elective for approved Seniors and Graduates.

Professor EVERETT

**14, 28, 42. Philosophical Seminary.**

Three hours. Through the year. Elective for Graduates.

Professor EVERETT

**[17. Discussions in Casuistry.]**

One hour. Second Term. Elective for Seniors and Graduates. Not offered in 1904-05.

Professor MEIKLEJOHN

**33, 34, 35. Kantian and Post-Kantian Philosophy.**

Three hours. Through the year. Elective for Seniors who have taken Philosophy 8, 9, 10, and for Graduates.

Professor MEIKLEJOHN

**[6, 7, 11. Advanced Logic.]**

Three hours. Through the year. Elective for Graduates. Not offered in 1904-05.

Professor MEIKLEJOHN

*Philosophical Club.* A Philosophical Club, consisting of Graduate, Senior, and Junior students of Philosophy, meets once a month for the reading of papers and for discussion. Though the organization is primarily in the hands of the students, the officers of instruction in the philosophical department and other persons interested in philosophy usually attend.

**EDUCATION**

Professor JACOBS

**1. History of Education.**

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.

**2. Critical Study of Modern Education.**

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

**3. Fundamental Principles of Education.**

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.

NOTE: Courses 1, 2, and 3 are of general interest, yet form an introduction to the courses which follow. Those who intend to teach are recommended to elect them during the Junior year.

*4. Psychology of Education.*

Three hours. First Term. Elective for Seniors and Graduates.

*5. Hygiene of Education.*

Three hours. Second Term. Elective for Seniors and Graduates.

*6. Practical Introduction to Teaching.*

Three hours. Third Term. Elective for Seniors and Graduates.

NOTE: Courses 1-6 cover the requirements in professional studies for certificates of the First Grade in all States except those where practice-teaching or experience is demanded. In Rhode Island the holding of a certificate is required of all teachers in schools supported in whole or in part by public money. Certificates of the First Grade are granted without examination to those who have completed courses 1-6 and hold a college degree. Due credit is also given for separate courses.

*7, 8, 9. Methods in Secondary School Studies, and the Organization, Equipment, and Management of Secondary Schools.*

Three hours. Two hours of class-room attendance. Required of student-teachers. Elective for Graduates and experienced teachers. Each term may be elected separately.

*10, 11, 12. Training in Practical Teaching: Secondary Schools.*

Three hours. Through the year. Elective for Graduates and experienced teachers.

*16, 17, 18. Training in Practical Teaching: Grammar Grades.*

Three years. Through the year. Elective for Graduates who have completed elementary courses in Education.

*13, 14, 15. Seminary in Educational Problems.*

Three hours. Two hours of class-room attendance. Required of student teachers. Elective for Graduates and experienced teachers. Each term may be elected separately.

The seminary meets on Saturday mornings from ten to twelve. The subjects for 1904-05 are: First Term, Imitation, social and ethical interpretations. Second Term, Recent types of educational theory. Third Term, an intensive study of some period in the history of education.

## XVII. PHYSICS

*1, 32, 4. Elementary Physics.*

Three hours. Through the year. Elective for Undergraduates who have taken Mathematics 1, 2, 3, or its equivalent.

Professor BARUS

**[2. Molecular Physics.]**

Three hours. Second Term. Elective for Sophomores, Juniors, and Seniors who have passed in 1. Not offered in 1904-05.

Professor BARUS

**[37. Acoustics.]**

Three hours. Second Term. Elective for Sophomores, Juniors, and Seniors who have passed in 1. Not offered in 1904-05.

Professor BARUS

**38. Heat.**

Three hours. Second Term. Elective for Sophomores, Juniors, and Seniors who have passed in 1, 32, 4, and for engineering students with the special permission of the department.

Professor BARUS

**NOTE:** Courses 2, 32, 37 and 38, consist of lectures on the elementary principles of Molecular Physics, Optics, Acoustics, and Heat. One of these courses is given every year in connection with 1 and 4.

Graduates attending courses 1, 2, 4, 32, 37, 38, are held responsible for all the demonstrations, or for the full equivalent of either Watson's or Daniell's *Principles of General Physics*.

**5, 9, 10. Physical Measurements.**

Three hours. Six hours in the laboratory. Through the year. Elective for students who have passed in 1, 2, 4.

Professor PALMER

**13, 14, 16. Mathematical Treatment of Dynamical Problems.**

Three hours. Through the year. Elective for Seniors and Graduates who have passed in 10 and Mathematics 16.

Professor PALMER

**17, 18, 19. Advanced laboratory course.**

Three or six hours. Six or twelve hours of attendance. Through the year. Elective for students who have passed in 10.

Professors BARUS, PALMER, and WATSON

**20, 21, 48. Applied Harmonic Analysis.**

Three hours. Through the year. Elective for Seniors and Graduates who have passed in 1, 2, 4 and Mathematics 14, 15.

Professor BARUS

**22. Behavior of Matter through Long Ranges of Temperature.**

Elective for Graduates.

Professor BARUS

**23. Behavior of Matter through Long Ranges of High Pressure.**

Elective for Graduates.

Professor BARUS

**24. Absolute Viscosity of Solids as Compared with Liquids and Gases.**

Elective for Graduates.

Professor BARUS

**25. Physical Properties of the Iron Carburets.**

Elective for Graduates.

Professor BARUS

**26, 27, 28, Mathematical Theory of Electricity and Magnetism.**

Three hours. Through the year. Elective for Graduates and Seniors who have passed in 10 and Mathematics 16.

Professor PALMER

**29, 30, 31. Physics, advanced course.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates who have passed in Mathematics 12, 13, and 14.

Professor BARUS

NOTE: Courses 22 to 25, inclusive, occupy more or less time a week, according to the requirements of the students. Other courses in original research are offered to suit the special needs of advanced students. The order of interchange between 13, 14, 16 and 26, 27, 28, and between 20, 21, 48 and 29, 30, 31, is not fixed. The preference of the applicants for instruction will be regarded in determining which shall be given.

**36, 39. Precision Measurements in Photometry, Electricity, and Magnetism.**

Three hours. Six hours in the laboratory. First and Second Terms. Elective for students who have passed in 10 and Mathematics 13.

Professor PALMER

**46. Applied Electro-Chemistry.**

Three hours. Six hours in the laboratory. Third Term. Elective for students who have passed in 39 and 15.

Professor PALMER

NOTE: Candidates for the degree of Master of Arts with a major in physics will be held responsible for at least one of the advanced courses in theoretical physics. The requirements for non-resident students taking their minor in physics are quite as advanced as for students in residence taking their major in physics. The department is able to offer every reasonable facility both for research work and for the study of the higher problems in physics; it is not able to offer much encouragement to those wishing to take degrees not in residence.

## ELECTRICAL ENGINEERING

Professor WATSON

**11. Elementary Course.**

Three hours. First Term. Elective for students who have passed in Physics 4.

**12. *Dynamo-Electric Machinery.***

Three hours. Two hours of recitation, and two hours in the laboratory. Second Term. Elective for students who have passed in 11, and who have taken or are taking Physics 5, 9, 10, and Mathematics 12.

**15. *Dynamo-Electric Machinery.***

Three hours. One hour of lectures and four hours in the laboratory. Third Term. Elective for students who have passed in 11 and 12.

**33. *Periodic or Alternating Currents of Electricity.***

Three hours. First Term. Elective for students who have passed in 15, and who have taken or are taking Mathematics 15.

**34. *Utilization of Alternating Currents.***

Three hours. Second Term. Elective for students who have passed in 33.

**35. *Alternating Current Machinery, laboratory course.***

Three hours. Six hours in the laboratory. Third Term. Elective for students who have passed in 34.

**41. *Telephone and Telegraph Engineering.***

Three hours. Two hours of recitation and one hour in the laboratory. First Term. Elective for candidates for the degree of Bachelor of Science in Electrical Engineering. May be taken with 11.

**40. *Development and Scope of Industrial Electricity.***

Three hours. Second Term. May be taken with 12.

**42. *Design and Calculation of Direct Current Machinery.***

Three hours. Third Term. May be taken with 15.

**43. *Electric Railway Engineering.***

Three hours. First Term. Elective for students who have passed in 15.

**44. *Design and Calculation of Alternating Current Machinery.***

Three hours. Second Term. Elective for students who have passed in 33.

**45. *Central Station Design, Equipment, and Systems of Distribution.***

Three hours. Second Term. Elective for students who have passed in 33.

**47. *Specific Engineering Problems.***

Three hours. Third Term. Seminary methods.

## XVIII. POLITICAL ECONOMY

*The courses in this department other than 12 are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the advanced work of the departments of Social and Political Science and Political Economy.*

### 12. *Political Economy, elementary.*

Three hours. Third Term. Elective for Sophomores, Juniors, and Seniors who have passed in Social Science 12 and Political Science 12.

Professor GARDNER

### 1, 2, 3. *General Economics.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor GARDNER (First and Second Terms), Dr. WILLETT (Third Term)

### [6, 7. *Money and Banking.*]

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05. To be offered in 1905-06.

Professor GARDNER

### 9, 10, 11. *Public Finance.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

First Term, the general principles of public finance, together with a comparison of the revenues and expenditures of leading industrial nations. Second Term, the financial history of the United States. Third Term, local finance with special reference to the revenues, expenditures and financial systems of American states and cities.

Professor GARDNER

### [13, 14, 18. *History of Political Economy.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05. To be offered in 1905-06.

Dr. WILLETT

### 15. *The Labor Movement.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

Special emphasis laid on the history and analysis of the trade union movement, including the growth of collective bargaining and the discussion of labor problems in the United States.

Dr. WILLETT

### 4. *Socialism.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

A brief review of the historically important socialistic schemes, but mainly a study of the modern scientific socialism of Karl Marx and of the resulting socialistic movements.

Dr. WILLETT

[16. *Industrial Corporations.*]

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05. To be offered in 1905-06.

Professor GARDNER

17. *The Tariff.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

A discussion of the arguments for free trade and protection considered in relation to the principles of international trade, and a historical study of tariff legislation in the United States.

Dr. WILLETT

19. *Industrial History of England.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. Professor GARDNER

20. *Industrial History of the United States to 1860.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

Professor GARDNER

21. *Industrial Conditions in the United States since 1860.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. Professor GARDNER

5. *Insurance.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

Theory of risk and insurance. Mutual and joint stock companies. General principles of the technique of insurance. Investment of insurance funds. Preventive activities of insurance companies. Effect of the institution of insurance on amount of loss.

Dr. WILLETT

8. *Insurance.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1905-06.

Historical development and present condition of the insurance business. Economic and social effects of insurance. Attitude of the State towards insurance.

Dr. WILLETT

22, 23, 24. *Investigation of Special Topics.*

Three hours. Six hours of attendance. Through the year. Elective for approved Juniors, Seniors, and Graduates. Each term may be elected separately.

Professor GARDNER and Dr. WILLETT

## XIX. ROMAN LITERATURE AND HISTORY

**NOTE:** While grammatical study and literary criticism receive attention in the courses of the Freshman year, the special aim is to enable the student to acquire facility in reading and to instruct him in the use of the Latin texts as a means of acquiring a knowledge of Roman history. In the Sophomore courses, the literary side of the study is made prominent. A part of the time is occupied with a critical study of the poems, while a part is devoted to rapid reading with a view to comprehending the spirit of the authors. Lectures are given by the instructor, and literary topics are assigned to the class for special study. The advanced courses open to Juniors and Seniors relate to the development and history of Roman literature. Poetry and prose are discussed in alternate years. The aim of these courses is to give a connected and comprehensive view of the entire range of Roman literature. Lectures are given on the lives and writings of the authors, and characteristic selections are read. Topics in literary history and criticism are assigned to members of the class for special study and investigation.

### 1. *Livy.*

Three hours. First Term. Elective for students who presented elementary and advanced Latin for admission.

Professors HARKNESS and GREENE

### 2. *Cicero's Letters.*

Three hours. Second Term. Elective for students who presented elementary and advanced Latin for admission.

Professors HARKNESS and GREENE

### 3. *Tacitus's Germania and Agricola.*

Three hours. Third Term. Elective for students who presented elementary and advanced Latin for admission.

Professors HARKNESS and GREENE

### 46, 47. *Roman Life.*

Three hours. Second and Third Terms. Elective for Freshmen and Sophomores.

Professor GREENE

**NOTE:** This course is a continuation of Greek 46. The three terms together constitute the course called History of Greek and Roman Life and Institutions.

### [48. *Roman Literature.*]

Three hours. Second Term. Elective for Freshmen and Sophomores. Not offered in 1904-05.

Professor HARKNESS

NOTE: This course follows Greek 47 and is continued in the third term by Indo-European Philology 1. The three terms together constitute the course in Greek and Roman Literature, and History of Language. No knowledge of Latin is required.

*4. Horace's Odes and Epodes.*

Three hours. First Term. Elective for Sophomores.

Professor GREENE

*5. Catullus, Tibullus and Propertius.*

Three hours. Second Term. Elective for Sophomores.

Professor GREENE

*6. Satires of Horace.*

Three hours. Third Term. Elective for Sophomores.

Professor HARKNESS

[*7. Origin of Latin Poetry and Development of the Drama.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor HARKNESS

[*8. Poetry of the Republic, continued, and Poetry of the Augustan Age.*]

Three hours. Second Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor HARKNESS

[*9. Poetry of the Silver Age.*]

Three hours. Third Term. Elective for Juniors and Seniors. Not offered in 1904-05.

Professor HARKNESS

*11. Prose of the Early Republican Period.*

Three hours. First Term. Elective for Juniors and Seniors.

Lectures on prose. Reading from Terence.

Professor HARKNESS

*12. Prose of the Later Republican Period.*

Three hours. Second Term. Elective for Juniors and Seniors.

Reading from Cicero.

Professor HARKNESS

*13. Prose of the Silver Age.*

Three hours. Third Term. Elective for Juniors and Seniors.

Reading from the *Annals* of Tacitus.

Professor HARKNESS

[*10, 14, 15. Private Life and Antiquities of Rome.*]

One hour. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1904-05.

Professor HARKNESS

16, 17, 18. *Petronius, Pliny the Younger, Martial.*

One hour. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor HARKNESS

[19, 20, 21. *Epigraphy.*]

Two hours. Through the year. Elective for Graduates and qualified Undergraduates. Not offered in 1904-05.

Professor HARKNESS

[22, 23, 24. *Palaeography and Textual Criticism.*]

Two hours. Through the year. Elective for Graduates and qualified Undergraduates. Not offered in 1904-05.

Professor HARKNESS

37, 38, 39. *Latin Composition.*

One hour. Through the year. Elective for Sophomores, Juniors, and Seniors.

Professor GREENE

40, 41, 42. *Seminary in Latin.*

Two hours. Through the year. Elective for Graduates.

Prose writers of the Empire. A study of the history of prose style. Reading from Gudeman's *Latin Literature of the Empire*, Volume I.

Professors HARKNESS and GREENE

*Harkness Classical Club.* Meetings are held once a month for the reading of papers and for discussion. Arrangements also are made from time to time for public addresses. The membership is open to Graduates and Undergraduates.

## XX. ROMANCE LANGUAGES AND LITERATURES

### FRENCH

A, B, C. *Elementary French.*

Three hours. Through the year. Required of all students who did not present French for admission.

Professor MORSE, Messrs. HUNKINS and KENYON

1, 2, 3. *French Language, intermediate course.*

Three hours. Through the year. Required of all Freshmen who presented elementary French for admission.

Professors JOHNSON and MORSE, Messrs. HUNKINS and KENYON

10, 11, 12. *French Language and Literature.*

Three hours. Through the year. Elective for students who presented advanced French for admission, or who received only a pass-mark in 1, 2, 3.

An introduction to the best French literature of the nineteenth century; includes some study of the language.

Professor MORSE and Mr. HUNKINS

[4, 5, 6. *French Literature from 1800 to 1850.*]

Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3. Not offered in 1904-05.

Professor JOHNSON

13, 14, 15. *Practice in Writing and Speaking French.*

Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3 or 10, 11, 12.

Professor JOHNSON

[16, 17, 18. *Old French.*]

Three hours. Through the year. Elective for Seniors and Graduates. Not offered in 1904-05.

Professor MORSE

[19, 20, 21. *French Literature since 1850.*]

Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3, or have passed in 10, 11, 12. Not offered in 1904-05. To be offered in 1905-06.

Flaubert, Les Goncourt, Zola, Daudet, Renan, Dumas fils, Augier, Rostand, and others.

Professor JOHNSON

22, 23, 24. *French Literature from 1636 to 1800.*

Three hours. Through the year. Elective for students who have passed in 6, 15, or 21.

Corneille, Pascal, Madame de La Fayette, Molière, Racine, La Fontaine, Boileau, Bossuet, Madame de Sévigné, Marivaux, Le Sage, Voltaire, Beaumarchais, Saint-Simon, and others.

Professor JOHNSON

37, 38, 39. *French Drama.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates who have passed with credit in French 1, 2, 3.

—, —, —. *Drama in English.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor LANGDON

16, 17, 18. *Petronius, Pliny the Younger, Martial.*

One hour. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor HARKNESS

[19, 20, 21. *Epigraphy.*]

Two hours. Through the year. Elective for Graduates and qualified Undergraduates. Not offered in 1904-05.

Professor HARKNESS

[22, 23, 24. *Palaeography and Textual Criticism.*]

Two hours. Through the year. Elective for Graduates and qualified Undergraduates. Not offered in 1904-05.

Professor HARKNESS

37, 38, 39. *Latin Composition.*

One hour. Through the year. Elective for Sophomores, Juniors, and Seniors.

Professor GREENE

40, 41, 42. *Seminary in Latin.*

Two hours. Through the year. Elective for Graduates.

Prose writers of the Empire. A study of the history of prose style. Reading from Gudeman's *Latin Literature of the Empire*, Volume I.

Professors HARKNESS and GREENE

*Harkness Classical Club.* Meetings are held once a month for the reading of papers and for discussion. Arrangements also are made from time to time for public addresses. The membership is open to Graduates and Undergraduates.

## XX. ROMANCE LANGUAGES AND LITERATURES

### FRENCH

A. B. C. *Elementary French.*4, 5, 6. *Dante*

Three hours. Through the year. Elective for students who have had 1, 2, 3 or its equivalent.

The *Divina Commedia* read in the original.

Professor LANGDON

advanced French for admission, or who received only a pass-mark in 1, 2, 3.

An introduction to the best French literature of the nineteenth century; includes some study of the language.

Professor MORSE and Mr. HUNKINS

[4, 5, 6. *French Literature from 1800 to 1850.*]

Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3. Not offered in 1904-05.

Professor JOHNSON

13, 14, 15. *Practice in Writing and Speaking French.*

Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3 or 10, 11, 12.

Professor JOHNSON

[16, 17, 18. *Old French.*]

Three hours. Through the year. Elective for Seniors and Graduates. Not offered in 1904-05.

Professor MORSE

[19, 20, 21. *French Literature since 1850.*]

Three hours. Through the year. Elective for students who have passed with credit in 1, 2, 3, or have passed in 10, 11, 12. Not offered in 1904-05. To be offered in 1905-06.

Flaubert, Les Goncourt, Zola, Daudet, Renan, Dumas fils, Augier, Rostand, and others.

Professor JOHNSON

22, 23, 24. *French Literature from 1636 to 1800.*

Three hours. Through the year. Elective for students who have passed in 6, 15, or 21.

Corneille, Pascal, Madame de La Fayette, Molière, Racine, La Fontaine, Boileau, Bossuet, Madame de Sévigné, Marivaux, Le Sage, Voltaire, Beaumarchais, Saint-Simon, and others.

Professor JOHNSON

37, 38, 39. *French Drama.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates who have passed with credit in French 1, 2, 3.

Professor LANGDON

## ITALIAN

1, 2, 3. *Modern Italian.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professors LANGDON and MORSE

## COMPARATIVE LITERATURE

1, 2, 3. *Dante in English.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates.

Professor LANGDON

## SPANISH

1, 2, 3. *Modern Spanish.*

Three hours. Through the year. Elective for Juniors, and for Sophomores not electing more than one other modern foreign language.

Professor JOHNSON

[4, 5, 6. *Spanish Literature of the Nineteenth Century.*]

Three hours. Through the year. Elective for students who have passed in 1, 2, 3. Not offered in 1904-05. To be offered in 1905-06.

Gil y Zárate, Moratin, Núñez de Arce, Tamayo, Echegaray, Alarcón, Valera, Galdós, Valdés, and Pardo Bazán.

Professor JOHNSON

7, 8, 9. *Spanish Classics.*

Three hours. Through the year. Elective for students who have passed in 1, 2, 3.

Lope, Calderón, Cervantes, Téllez, and others.

Professor JOHNSON

## XXI. SOCIAL AND POLITICAL SCIENCE

*The courses in this department other than 12 are open only to those students who have passed in Social Science 12 (first term), Political Science 12 (second term), and Political Economy 12 (third term), which together constitute a single course introductory to the advanced work of the departments of Social and Political Science and Political Economy.*

## SOCIAL SCIENCE

12. *Elementary Course.*

Three hours. First Term. Elective for Sophomores, Juniors, and Seniors.

Professor WILSON

10. *Social Institutions.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.

Professor DEALEY

2, 3. *Social Problems and Conditions.*

Three hours. Second and Third Terms. Elective for Juniors, Seniors, and Graduates. Each term may be elected separately.

Professor WILSON

4. *Social Philosophy.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.

Professor DEALEY

NOTE: Courses 1, 5, 11, 7, 8, 9 are primarily for Graduates and may be elected by those Undergraduates only who are approved by the department. These courses are given according to the needs of qualified applicants.

1. *The Principles of Sociology.*

Three hours.

Professor WILSON

5. *Development of Social Theory.*

Three hours.

Professor DEALEY

11. *Demography.*

Three hours.

Professor WILSON

7, 8, 9. *Current Social Theory and Practice.*

One hour.

Professors WILSON and DEALEY

22, 23, 24. *Investigation of Special Topics.*

See Political Economy, 22, 23, 24.

## POLITICAL SCIENCE

12. *Elementary.*

Three hours. Second Term. Elective for Sophomores, Juniors, and Seniors who have passed in Social Science 12.

Professor DEALEY

3. *International Law and Relations.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.

Professor WILSON

7. *Diplomacy and World Politics.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

Professor WILSON

11. *Diplomacy and World Politics.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.

Professor WILSON

4. *United States Government.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates.

Professor DEALEY

15. *Local and Municipal Government.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates.

Professor DEALEY

NOTE: This course is supplemented by course 35 on Municipal Improvements offered by the department of Civil Engineering, which see.

2. *Comparative Study of Constitutions.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.

Professor DEALEY

NOTE: Courses 1, 16, 6, 17, 18, 19, 13, 14, 5, 8, 9, 10 are primarily for Graduates and may be elected by those Undergraduates only who are approved by the department. These courses are given according to the needs of qualified applicants.

1. *The State.*

Three hours.

Professor DEALEY

16. *Constitutional Law.*

Three hours.

Professor DEALEY

6. *Roman Law.*

Three hours.

Professor DEALEY

17. *Political Problems.*

Three hours.

Professor WILSON

18. *Political Parties.*

Three hours.

Professor WILSON

19. *The Latin-American Republics.*

Three hours.

Professor DEALEY

13. *National Administration.*

Three hours.

Professor WILSON

14. *Colonial Administration.*

Three hours.

Professor WILSON

5. *Development of Political Theory.*

Three hours.

Professor DEALEY

8, 9, 10. *Current Political Theory and Practice.*

One hour.

Professors WILSON and DEALEY

22, 23, 24. *Investigation of Special Topics.*

See Political Economy 22, 23, 24.

## XXII. ZOÖLOGY, GEOLOGY, AND ANTHROPOLOGY

### ZOÖLOGY

1. *General Course on Invertebrate Animals.*

Three hours. Second Term. Elective for Juniors and Seniors.

Professor PACKARD

*3. Organic Evolution.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates.  
Professor PACKARD

GEOLOGY.

*1. Physical Geology.*

Three hours. First Term. Elective for Seniors.  
Professor PACKARD

*5. Structural and Stratigraphic Geology.*

Three hours. Six hours of field or laboratory work. First Term. Elective for Seniors.  
Professor PACKARD

*2. Historical Geology, including Paleontology.*

Three hours. Second Term. Elective for Seniors or for students who have passed in Geology 1, and Zoölogy 1 and 3.  
Professor PACKARD

*9. Paleontology.*

Three hours. Third Term. Elective for students who have passed in Geology 1, 2.  
Professor PACKARD

*11. Mineralogy.*

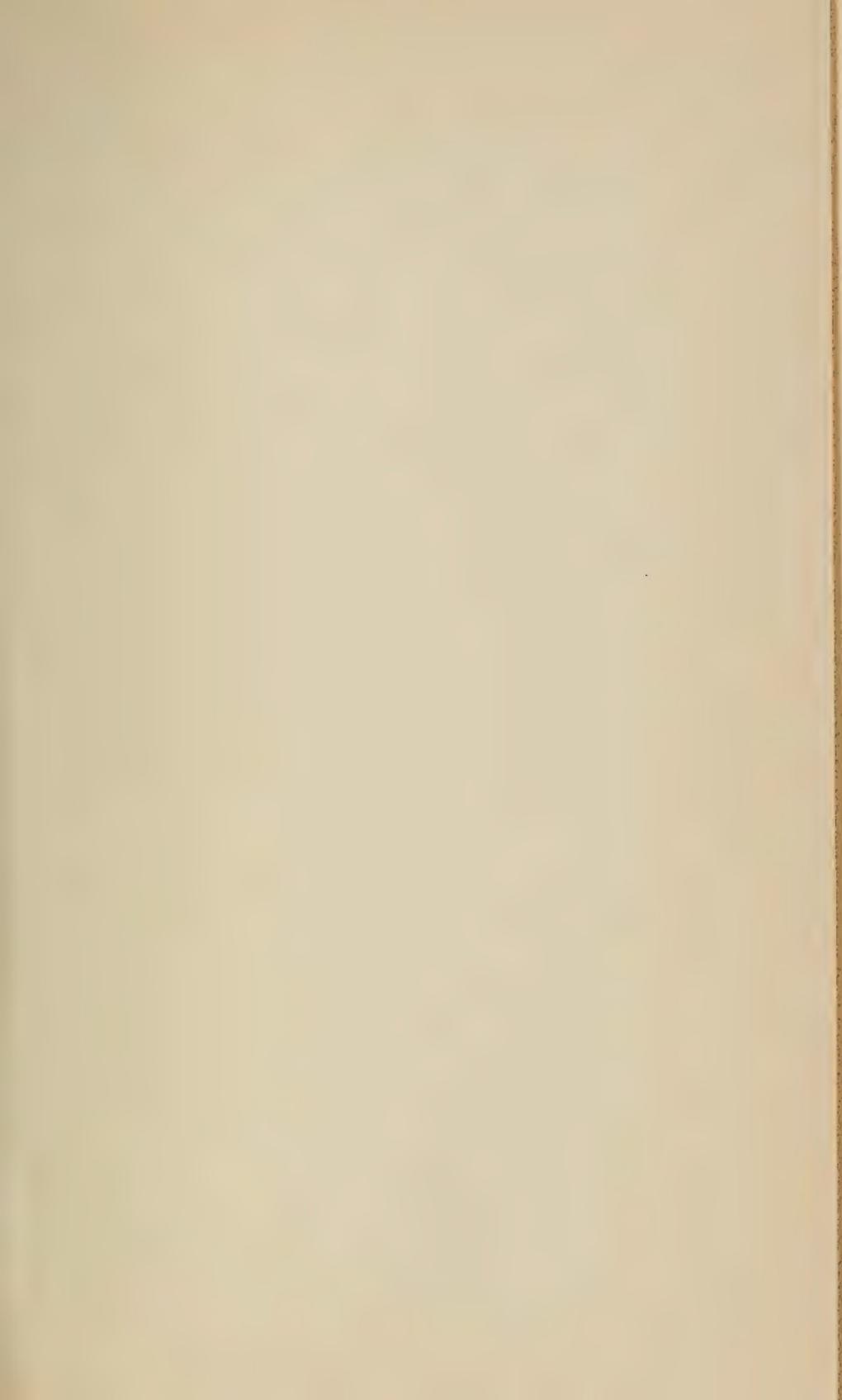
Three hours. Third Term. Elective for Juniors and Seniors  
Study of fifty minerals, their properties, methods of field determination, and their economic effect on building stones.  
Professor BLANCHARD

ANTHROPOLOGY

*1. General Course.*

Three hours. Third Term. Elective for Seniors and Graduates.  
Professor PACKARD











In 5

05/06

BULLETIN OF BROWN UNIVERSITY

VOL. II.

APRIL, 1905

No. I

ANNUAL  
ANNOUNCEMENT

1905-06



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BROWN UNIVERSITY

ANNUAL

ANNOUNCEMENT

FOR THE

ACADEMIC YEAR

1905-1906



PROVIDENCE, R. I.

1905

## CALENDAR, 1905-1906

# University Calendar 1905-06.

1905.

- September* 6.      *Wednesday.* Annual Meeting of the Corporation (first Wednesday in September).
- September* 14-18.    *Thursday, Friday, Saturday, and Monday.* Examinations for admission to the Freshman Class and to Advanced Standing.
- September* 19.      *Tuesday.* Last day for registration and enrollment of Undergraduate Students.
- September* 20.      *Wednesday.* ACADEMIC YEAR BEGINS.
- September* 20.      *Wednesday.* Last day for registration of Graduate Students.
- September* 30.      *Saturday.* Examination in Greek for the President's Premiums.
- October* 4.      *Wednesday.* Examinations in Latin for the President's Premiums.
- October* 7.      *Saturday.* Examination in Mathematics for the Harts-horn Premiums.
- October* 11.      *Wednesday.* Examination in French for the President's Premiums.
- November* 30, *December* 1, 2.    *Thursday, Friday, and Saturday.*
- THANKSGIVING RECESS.
- December* 14-22.    *Thursday to Friday.* Term Examinations.
- December* 23, 1905, to *January* 3, 1906.    *Saturday to Tuesday inclusive*
- CHRISTMAS RECESS.

1906

- January 2.*      *Tuesday.* Last day for enrollment of Undergraduate Students.
- January 3.*      *Wednesday.* SECOND TERM BEGINS.
- February 22.*      *Thursday.* Washington's Birthday. No University exercises.
- March 13-21.*      *Tuesday to Wednesday.* Term Examinations.
- March 22-28.*      *Thursday to Wednesday inclusive.*
- SPRING RECESS.
- March 28.*      *Wednesday.* Last day for enrollment of Undergraduate Students.
- March 29.*      *Thursday.* THIRD TERM BEGINS.
- March 30.*      *Friday.* Last day for receiving essays submitted in competition for the Gaston Prize Medal.
- April 30.*      *Monday.* Last day for receiving theses of candidates for the degree of Doctor of Philosophy.
- May 8.*      *Tuesday.* Carpenter Prize Speaking Contest.
- May 15.*      *Tuesday.* Gaston Prize Medal Competition.
- May 22.*      *Tuesday.* Hicks Prize Debate.
- May 30.*      *Wednesday.* Memorial Day. No University exercises.
- May 31.*      *Thursday.* Last day for examinations for Advanced Degrees.
- June 7-15.*      *Thursday to Friday.* Term Examinations.
- June 17.*      *Sunday.* Baccalaureate Sermon: First Baptist Meeting House, 4.30 p. m.
- June 18.*      *Monday.* Class Day.

- June 19.*      *Tuesday.* Annual Meeting of the Phi Beta Kappa Society: 5 University Hall, 9.30 A. M.
- June 19.*      *Tuesday.* Ivy Day: Pembroke Hall.
- June 19.*      *Tuesday.* Annual Meeting of the Alumni: Manning Hall, 2 P. M.
- June 20.*      *Wednesday.* ONE HUNDRED AND THIRTY-EIGHTH ANNUAL COMMENCEMENT (third Wednesday in June): First Baptist Meeting House, 10.00 A. M.
- June 21.*      *Thursday.* Meeting of the Corporation.
- June 21-25.*    *Thursday, Friday, Saturday, and Monday.* Examinations for Admission to the Freshman Class and to Advanced Standing.



# GENERAL ANNOUNCEMENTS

FOR THE

## ACADEMIC YEAR 1905-1906.

The academic year begins with chapel service at 9.00 A. M., on Wednesday, September 20. At the close of this service the classes will begin their sessions according to the time schedule.

### EXAMINATIONS.

Examinations for admission to the Freshman Class will be held as follows:

#### THURSDAY, SEPTEMBER 14

*Algebra*, 27 Wilson Hall, 8 A. M. to 10 A. M.

*Geometry*, 27 Wilson Hall, 10 A. M. to 12 M.

*Elementary French*, 2 Wilson Hall, 1 P. M. to 3 P. M.

*Advanced French*, 2 Wilson Hall, 4 P. M. to 6 P. M.

#### FRIDAY, SEPTEMBER 15

*Elementary Greek*, 2 Wilson Hall, 8 A. M. to 10 A. M.

*Astronomy*, 25 Wilson Hall, 8 A. M. to 10 A. M.

*Advanced Greek*, 2 Wilson Hall, 10 A. M. to 11.30 A. M.

*Physical Geography*, 25 Wilson Hall, 10 A. M. to 12 M.

*Latin*, 25 Wilson Hall, 12.30 P. M. to 4 P. M.

*English and American History*, 27 Wilson Hall, 4 P. M. to 6 P. M.

*Freehand Drawing*. Candidates will offer their plates for examination at 2 Wilson Hall, at 2 P. M.

#### SATURDAY, SEPTEMBER 16

*English*, 26 Wilson Hall, 8 A. M. to 10 A. M.

*Chemistry*, 2 Wilson Hall, 11 A. M. to 1 P. M.

*Solid Geometry*, 27 Wilson Hall, 2 P. M. to 4. P. M.

*Plane Trigonometry*, 27 Wilson Hall, 4 P. M. to 6 P. M.

MONDAY, SEPTEMBER 18

*Elementary German*, 2 Wilson Hall, 8 A. M. to 10 A. M.

*Advanced German*, 2 Wilson Hall, 10 A. M. to 12 M.

*Ancient History*, 25 Wilson Hall, 1 P. M. to 3. P. M.

*Physics*, 1 Wilson Hall, 4 P. M. to 6 P. M.

Examinations for admission to the Sophomore, Junior, and Senior classes will be held on Monday and Tuesday, September 18 and 19. Candidates will report at the Registrar's office on Monday, September 18, at 9 A. M.

## REGISTRATION AND ENROLLMENT OF UNDERGRADUATES.

### REGISTRATION.

In May of each year all undergraduates, whether candidates for a degree or special students, must obtain at the Registrar's office registration cards for the next year; these cards must be filled out by the students themselves with a statement of the courses elected for the whole of the ensuing year, and returned not later than June 10th. Failure to comply with this rule will be treated as late registration and a fee of three dollars charged.

All new students, whether candidates for a degree or special students, must report at the Registrar's office between 9 A. M. and 1 P. M. or 2.30 and 5 P. M. on the Monday or Tuesday preceding the opening of the first term, and fill out registration cards for the whole of the ensuing year. Failure to comply with this rule will be treated as late registration and a fee of three dollars charged. All new students must present at or before the time of registration all credentials necessary for admission either as candidates for a degree or as special students.

Courses bearing a single number must be elected as a whole. When term courses are grouped in one paragraph, (e. g. Astronomy 1, 2, 3), the second term may not be taken without

the first, nor the third without the second, unless specific statement to the contrary is made. In starred courses a final mark covering the work of the course as a whole will be given at the end of the course, the marks given at the end of the preceding term or terms being regarded as temporary.

Registration is intended to cover the whole year, and changes will be allowed only on presentation of sufficient reasons to the Committee on Registration and Attendance. The Committee will be in session in the Administration Building from 9 A. M. to 1 P. M., and from 2.30 to 5 P. M. on the two days preceding the opening of the first term. All students desiring to make changes in registration for the second or the third term must apply to the Committee on Registration and Attendance before the beginning of the examinations of the preceding term. In case of changes in registration on account of failures in the first or second term, written applications must be filed at the Registrar's office on or before the second day preceding the opening of the next term.

#### **ENROLLMENT.**

In September all students whose registration cards were placed on file in May must report between 10 A. M. and 12 M. or between 3 and 5 P. M. on the day preceding the opening of the first term, at the places noted below, and have their names checked as enrolled for the term. Failure to report will be treated as late enrollment and a fee of three dollars charged.

At the beginning of the second and of the third term all undergraduates must report between 10 A. M. and 12 M. or 3 and 5 P. M. on the day preceding the opening of the term and have their names checked as enrolled for the term. Failure to report will be treated as late enrollment and a fee of three dollars charged.

At the beginning of the first term, Seniors and special students previously in residence will report for enrollment in No. 1 Administration Building; Juniors in No. 5 University Hall, and Sophomores in No. 6 University Hall.

#### ARRANGEMENTS FOR GRADUATE STUDENTS.

The attention of students contemplating graduate study at Brown University is called to the rules of the Graduate Department published in the Catalogue. All such students will find it greatly to their advantage to correspond during the summer with the professors of the departments in which they may wish to be enrolled, with the object of ascertaining beforehand to which of the graduate courses offered they will be admitted. Students who are able to offer extra work in accordance with § 2 of the rules relating to graduate instruction will do well to secure a certificate for this work from the Registrar and to submit it to the Dean of the Graduate Department. Students who are not graduates of Brown University are advised to send their diplomas, certificates, etc., together with a marked catalogue or definite statement of the courses pursued in their undergraduate or other work, to the Dean of the Graduate Department, care of the Registrar, before September 15. Blanks for preliminary registration may be obtained from the Registrar.

Graduate students will report to the Dean of the Graduate Department in No. 5 Wilson Hall between 9 A. M. and 1 P. M. or between 3 and 5. P. M. on the Monday or Tuesday preceding the opening of the autumn term.

#### GUARANTEE.

Every student, with the exceptions noted below, must present at or before his registration for the first term of the year the following guarantee, properly signed and witnessed.

The guarantor must be the parent or guardian, or some other responsible person.

In consideration of the admission of .....  
as a student in Brown University, I hereby guarantee and promise to pay  
to said University all dues for rent, tuition, and incidental and other  
expenses properly chargeable to said.....as such student,  
as and when the same shall respectively become payable.

A student paying the full room charges for the year at or before his registration for the first term, and the tuition and other charges for each term, at or before his registration for that term, will not be required to present a guarantee.

## NOTES.

The recitation hours are ordinarily given in connection with the announcement of the courses of instruction. Where the time is not so given, the hours will be arranged with the instructors at the beginning of the term.

Members of the Senior Class who are candidates for the degree of Bachelor of Science in Civil Engineering are required to hand the subjects of their theses to the Professor of Civil Engineering on or before October 31, 1905.

Students desiring to rent rooms or to obtain room-mates should apply to the Registrar.

For official notices students should consult the bulletin boards in the north corridor of University Hall or in the Administration Building.

## CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS.

### I. PRESCRIBED SUBJECTS.

*Ancient Languages* (either Latin or Greek or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

*Modern Languages* (either French or German or both). Six hours.

At least three hours must be taken in the Freshman year, and the whole six hours must be completed by the end of the Sophomore year.

Students presenting German only must take elementary French. Students presenting French only must take elementary German. Students presenting elementary French only must continue French in the Freshman year and take elementary German in either the Freshman or the Sophomore year. Students presenting elementary German only must continue German in the Freshman year and take elementary French in either the Freshman or the Sophomore year. Students presenting elementary French and elementary German only must continue both languages, but may postpone the continuation of one language to the Sophomore year. Students presenting elementary work in one language and elementary and advanced work in the other must take in the Freshman year the language in which the elementary work only was presented. Students presenting elementary and advanced work in both languages may take the required six hours in either French or German or both.

*Mathematics.* Freshman year. Four or five hours.

Those who present Solid and Spherical Geometry and Plane Trigonometry must take Mathematics five hours a week during the Freshman year. This includes the courses now numbered Mathematics 4, 5; 15, 16. Students taking these courses will be enabled to begin work in the sciences requiring Mathematics one year earlier than other students.

*English.* Rhetoric and Composition. Three hours. Freshman year.

*European History.* Three hours. First and second terms, Sophomore or Junior year.

*English Literature.* Some three-hour course continuous through the year. Sophomore, Junior, or Senior year.

*Physical or Natural Science.* Some three-hour course continuous through the year. Freshman, Sophomore, or Junior year.

*Political Science, Social Science, and Political Economy.* One three-hour, one-term course in each of the three departments. Sophomore, Junior, or Senior year.

*Philosophy.* Some three-hour course continuous through the year. Sophomore, Junior, or Senior year.

## II. REQUIREMENTS ARRANGED BY YEARS

### FRESHMAN YEAR

#### I. Required Studies.

Latin 1, 2, 3 or Greek 1, 2, 3. Three hours.

French 1 or 2, 3, 4 or      }    German 1.      } Three hours.

Mathematics 3, 1, 2. Four hours or

Mathematics 4, 5; 15, 16. Five hours.

English 1. Three hours.

Gymnasium.

II. *Elective Studies.* One three-hour course running through the year must be chosen from the following list:

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French 1. For students presenting no French for admission.

French 2, 3, 4. For students presenting elementary French for admission.

French 5, 6, 7. For students presenting advanced French for admission.

German 1. For students presenting no German for admission.

German 2. For students presenting elementary German for admission.

German 7. For students presenting advanced German for admission.

Greek 34, Latin 30, Greek 35. (Greek and Roman Literature).  
For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission.  
(Subject to the consent of the department).

Botany 1. For all students.

Comparative Anatomy 1. For all students.

#### SOPHOMORE YEAR.

I. That portion of the required work in ancient and modern languages not completed in the Freshman year.

Gymnasium.

II. Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

#### JUNIOR YEAR.

I. The required History and Physical or Natural Science, if not previously taken.

II. Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

#### SENIOR YEAR.

I. All required courses not previously taken.

II. Elective courses sufficient with those taken under I. to make fifteen hours a week.

## CURRICULUM FOR CANDIDATES FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

### I. PRESCRIBED SUBJECTS.

*Modern Languages.* An amount sufficient with the work presented for admission to complete the elementary course and a year of advanced work in both French and German. A student who is admitted in both advanced French and advanced German is required to continue only one of these languages for one year, three hours a week.

\**Mathematics.* Four or five hours. Freshman year.

*English.* Rhetoric and Composition. Three hours. Freshman year.

*European History.* Three hours. First and second terms, Sophomore or Junior year.

*Physical or Natural Science.* Some three-hour course continuous through the year. Freshman, Sophomore, or Junior year.

*Philosophy.* Some three-hour course continuous through the year. Sophomore, Junior or Senior year.

### II. REQUIREMENTS ARRANGED BY YEARS.

#### FRESHMAN YEAR.

##### I. Required Studies.

English 1. Three hours.

French 1 or 2, 3, 4 or      }      German 1 or 2.      }      Three hours.

Mathematics 3, 1, 2. Four hours or

Mathematics 4, 5; 15, 16, Five hours.

Gymnasium.

##### II. Elective Studies. Two three-hour courses running through the year must be chosen from the following list:

Latin 1, 2, 3. For students presenting elementary and advanced Latin for admission.

Greek A, B, C. For students presenting no Greek for admission.

Greek 1, 2, 3. For students presenting elementary and advanced Greek for admission.

French 1. For students presenting no French for admission.

French 2, 3, 4. For students presenting elementary French for admission.

French 5, 6, 7. For students presenting advanced French for admission.

German 1. For students presenting no German for admission.

\* Five hours for students presenting for entrance Solid and Spherical Geometry and Plane Trigonometry.

German 2. For students presenting elementary German for admission.  
German 7. For students presenting advanced German for admission.  
Greek 34, Latin 30, Greek 35. (Greek and Roman Literature.) For all students.

Chemistry 1, 2, 3. For all students.

Chemistry 4, 5, 6. For students presenting Chemistry for admission.  
(Subject to the consent of the department).

Botany 1. For all students.

Comparative Anatomy 1. For all students.

Drawing 2, 3. For all students.

#### SOPHOMORE YEAR.

- I. That portion of the required work in modern languages not completed in the Freshman year.  
Gymnasium.
- II. Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

#### JUNIOR YEAR.

- I. The required History and Physical or Natural Science, if not previously taken.
- II. Other required and elective courses sufficient with those taken under I. to make fifteen hours a week.

#### SENIOR YEAR.

- I. All required courses not previously taken.
- II. Elective courses sufficient with those taken under I. to make fifteen hours a week.

# Courses of Instruction.

*In every department courses bearing a single number must be elected as a whole, whether they cover one, two, or three terms. When term courses are grouped in one paragraph, (e. g. Astronomy 1, 2, 3), the second term may not be taken without the first, nor the third without the second, unless specific statement to the contrary is made. In starred courses a final mark covering the work of the course as a whole will be given at the end of the course, the marks given at the end of the preceding term or terms being regarded as temporary.*

## I ART.

Professor POLAND.

### 1, 2, 3. *History of Art from Antiquity through the Renaissance.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected independently. *Mon., Wed., Th., at 10.20.*

First Term, Ancient art, or classical archæology. A general course in the history of ancient art, chiefly Greek. Second Term, Roman, early Christian, and Mediaeval art. A study of Roman, Romanesque, and Gothic art, with some notice of Byzantine, Arabian, and Oriental art. Third Term, Art of the Renaissance. The fifteenth and sixteenth centuries. The effect on art of the dominant motives of the epoch, the development of art in the different countries of Europe, the great masters and their most significant works. Text-book, lectures, lantern views.

### 4, 5. *Modern Art.*

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates, who have passed in 3. *Tu., Th., Sat., at 12.20.*

First Term, the seventeenth and eighteenth centuries; Second Term, the nineteenth century. Text-books, lectures, special assigned topics, lantern views.

### 6. *Theory and Criticism of the Fine Arts.*

Three hours. Third Term. Elective for students who have passed in any course in Art. *Tu., Th., Sat., at 12.20.*

A study of the more important facts and laws of artistic production. Text-book, special assigned topics, illustrated lectures.

[7. *Seminary in Classical Architecture.*]

Three hours. Second and Third Terms. Elective for Graduates. Not offered in 1905-06. To be offered in 1906-07.

Critical study; Vitruvius read in the original Latin; discussion of the principles followed by the Greek and Roman architects, and of the influence of Vitruvius upon the Renaissance.

8. *Seminary in Greek and Roman Sculpture.*

Three hours. Through the year. Elective for Graduates.

An archæological course based on Overbeck's *Schriftquellen*. A working knowledge of Latin and Greek is required.

[9. *Seminary Study of the Acropolis of Athens.*]

Three hours. First Term. Elective for Graduates who read Greek and Latin. Not offered in 1905-06. To be offered in 1906-07.

Critical reading, in the Greek, of Pausanias's account of the Acropolis of Athens; lectures and illustrations.

10. *Freehand Drawing.*

One hour. Two hours of drawing. Through the year. Elective for all students. Given at the Rhode Island School of Design. *Tu., or Th., or Fri., at 2.20.*

Training of hand and eye by progressive study of models of machine parts, casts of ornamental forms, and still-life objects.

11. *Practical Work in Art.*

Three hours. Through the year. Elective for students who are taking, or who have passed in Art 1, 2, 3, and who have also passed in 10, or have equivalent proficiency in drawing. Given at the Rhode Island School of Design. *Tu., Th., Fri., at 2.20.*

Six hours of drawing or other practical work. To illustrate the principles of delineation, color, and chiaroscuro, and the principles of design in architecture, sculpture, and painting, as exemplified in the historic forms of art.

## II. ASTRONOMY.

PROFESSORS UPTON and SLOCUM.

Courses 4, 5, 6 and 7, 8, 9 cover in part the same ground and may not both be taken by the same student, but either may be taken at the same time as 1, 2, 3. On application special instruction for Graduates will be provided at the Ladd Observatory.

**1, 2, 3. General Course.**

Three hours. Through the year. Elective for Juniors and Seniors who have passed in Mathematics 3, 1, 2. *Tu., Th., Fri., at 3.20.* Professor UPTON.

Fundamental conceptions of the science; methods of professional study; present state of our knowledge of the heavenly bodies. Young's *Manual of Astronomy*; lectures and abstracts upon assigned topics. Designed either for purposes of general culture or as a preparation for technical work.

**4, 5, 6. Geodetic Astronomy.**

Three hours. Through the year. Required of Engineering students. Elective for Juniors and Seniors who have passed in Mathematics 3, 1, 2. *Mon., Tu., Th., at 2.20.* Professor UPTON.

Application of astronomy to geodesy; use of the sextant, transit, and zenith telescope for determining time, latitude, longitude, and azimuth.

**7, 8, 9. Nautical Astronomy.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors, who have passed in Mathematics 3, 1, 2. *Mon., Wed., Th., at 10.20.* Professor SLOCUM.

Principles of navigation, methods of determining the position of a ship at sea; use of sextant, compass, and chart for determining latitude, longitude, bearings, and courses.

**10, 11, 12. Practical Astronomy.**

Three hours. Through the year. Elective for Graduates, and for Undergraduates who have shown special aptitude in either 1, 2, 3 or 4, 5, 6. Professor UPTON.

Advanced study of geodetic applications of astronomy; method of least squares. Doolittle's *Practical Astronomy*, with instrumental observations.

**13, 14, 15. Mathematical Astronomy.**

Three hours. Through the year. Elective for Graduates. Professor UPTON.

Mathematical theory of planetary and cometary orbits; micrometer observations and calculation of orbits.

**22, 23, 24. Physical Geography.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors, in the Women's College. Professor SLOCUM.

First Term, Meteorology; Second and Third Terms, Physical Geography of the sea and land.

### III. BIBLICAL LITERATURE AND HISTORY.

Professor FOWLER and Mr. Paine.

For conditions under which students may receive credit in the Newton Theological Institution for work done in this department, see the Catalogue, page 158, under Arrangements with other Institutions.

#### 1. *Elementary Hebrew.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Mon., Tu., Th., at 11.20.* Professor FOWLER.

#### 2. *Historical Hebrew.*

Three hours. Through the year. Elective for students who have completed 1. Professor FOWLER.

Reading of the books of Samuel and Kings with special attention to the acquisition of a vocabulary. Review of the grammar.

#### 3. *Hebrew Seminary.*

Three hours. Through the year. Elective for Graduates and approved Undergraduates. Professor FOWLER.

Subject for 1905-06: Prophetic Literature; critical analysis and translation of the prophetical writings of the Old Testament and study of the development of Israel's prophecy. In succeeding years corresponding courses in the Psalm, Wisdom, and Legal Literature of the Old Testament will be offered.

#### 4. *Textual Criticism of the Old Testament.*

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor FOWLER.

#### [5. *Biblical Aramaic.*]

Three hours. First Term. Elective for Seniors and Graduates who have completed 1. Not offered in 1905-06. Professor FOWLER.

#### 6. *Elementary Arabic.*

Two hours. Through the year. Elective for Seniors and Graduates. Professor FOWLER.

#### [7, 8, 9. *Gospels and Epistles.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected independently. Not offered in 1905-06. Professor FOWLER.

First Term, the Johannine writings. Second Term, the Gospel of Mark and the First Epistle of Peter. Third Term, the Gospels of Matthew and Luke.

**10, 11, 12. *Acts and Pauline Epistles.***

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected independently. *Mon., Tu., Th., at 2.20.* Professor FOWLER and Mr. PAINE.

Characteristics of Hellenistic Greek. Translation and investigation of date, authorship, and thought. First Term, Acts. Second Term, Thessalonians and Galatians. Third Term, Corinthians and Romans.

NOTE: Courses 13, 14 below are designed not only as a foundation for special Biblical work, but [also as a means of liberal culture. They form a two-years' course, giving a comprehensive view of the entire field of Biblical history and literature. No knowledge of Hebrew or Greek is required.

**[13. *Hebrew and Early Jewish History and Literature.*]**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Not offered in 1905-06. Professor FOWLER.

**14. *Later Jewish and Early Christian History and Literature.***

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. *Mon., Wed., Th., at 10.20.* Professor FOWLER.

**15. *Biblical Seminary.***

Three hours. Through the year. Elective for Graduates and approved Juniors and Seniors. Professor FOWLER.

Subject for 1905-06: Messianic Prophecy. No knowledge of Hebrew or Greek is required.

## IV. BOTANY.

PROFESSOR BAILEY AND MR. COLLINS.

**1.\* *Introductory.***

Three hours. Six hours of attendance. Through the year. Elective for Undergraduates. *Mon., Tu., Th., at 11.20.* Professor BAILEY.

General morphology of seed-producing plants; experiments; classification; ecology, etc.

**2.\* *Morphology and Physiology.***

Three hours. Six hours of attendance. Through the year. Elective for approved Graduates, and for Sophomores, Juniors, and Seniors who have passed in 1 or who have presented a satisfactory equivalent. Not to be offered in 1906-07. *Mon., Wed., Fri., at 12.20.* Mr. COLLINS.

Minute structure, physiology, and chemistry of cells and tissues; micro-technic; embryology; medicinal plants and their important constituents, etc. A general course, varying in details to meet the special needs of medical and forestry students.

[3, 4, 5. *Cryptogams.*]

Three hours. Six hours of attendance. Through the year. Requirements as in 2. Not offered in 1905-06. To be offered in 1906-07. Mr. COLLINS.

Structure, development, physiology, embryology, classification, etc. First Term, Lower fungi and algae. Second Term, Higher fungi and fungal diseases of crops and trees. Course 3 is a prerequisite for 4. Third Term, Hepatics, mosses, ferns and their allies. Course 3 is a prerequisite for 5.

6.\* *Investigation.*

Through the year. Primarily for Graduates. May be elected by approved Juniors and Seniors as a one, two, or three hour course with double the number of hours of attendance. May be elected in successive years as the work varies. Professor BAILEY and Mr. COLLINS.

Students electing this course must definitely arrange with the Instructors, before the end of the preceding academic year, for the collection of necessary material during the season of plant growth.

## V. CHEMISTRY.

Professors APPLETON and BUCHER, Messrs. BABASINIAN, DUMMER and R. D. CADY.

1, 2, 3. *Descriptive Chemistry.*

Three hours. Through the year. Elective for Undergraduates. 1st div. Mon., Th., at 10.20; 2d div. Tu. Fri., at 10.20; 3d div. Wed., Sat., at 11.20. Professor BUCHER, Messrs. BABASINIAN and DUMMER.

Non-metals; metals, their metallurgy, compounds, and practical applications; theoretical chemistry. Lectures with experiments; written exercises; individual laboratory work.

4. 5, *Qualitative Analysis.*

Three hours. Six hours of attendance. First and Second Terms. Elective for Juniors. 1st div. Fri., at 11.20; 2d div. Sat., at 10.20. Laboratory work, Mon., Tu., Wed., Th., Sat., at 11.20. Professor APPLETON and Mr. CADY.

First Term. Properties of the metallic elements, with their separation from certain of their compounds. Laboratory work; recitations in qualitative analysis and in chemical philosophy; exercises in stoichiometry. Second Term. The principal non-metals and the acids formed by them; methods of separation and recognition of acids and acid radicles.

### 6. Quantitative Analysis.

Three hours. Six hours of attendance. Third Term. Elective for Juniors. 1st div. Fri., at 11.20; 2d div. Sat., at 10.20. Laboratory work, Mon., Tu., Wed., Th., Sat., at 11.20. Professor APPLETON and Mr. CADY.

Quantitative precipitations and separations of the most important elements and compounds; the principles upon which quantitative apparatus is constructed; chemical philosophy and stoichiometry continued. Chiefly laboratory work.

### 7, 8, 9. Quantitative Analysis, advanced.

Six hours. Twelve hours of attendance. Through the year. Elective for Seniors and Graduates who have passed in 1-6. Mon., Tu., Wed., Th., Fri. Sat., at 10.20. Professor APPLETON and Mr. CADY.

Assaying of metallic ores, analysis of agricultural materials, testing of chemicals used in textile establishments, etc.

### 10, 11, 12. Organic Chemistry.

Six hours. Through the year. First and Second Terms, three lectures a week and three laboratory periods a week. Elective for Juniors, Seniors, and Graduates. Mon., Th., Fri., at 9.20. Professor BUCHER and Mr. BABASINIAN.

Preparation and analysis of representative organic compounds; lectures, recitations, and laboratory work.

### 13. Assaying.

Six hours. Twelve hours of attendance. Third Term. Elective for Seniors and Graduates who have passed in 1-6. Professor APPLETON and Mr. CADY.

### 14. Dyeing of Cotton, Wool, and Silk.

Six hours. Twelve hours of attendance. Third Term. Elective for Seniors and Graduates. Professor APPLETON and Mr CADY.

The preparation and use of mordants, dye-stuffs, etc.

### 15, 16, 17. Industrial Chemistry.

Through the year. Elective for Graduates. Each term may be elected separately. Professor APPLETON.

Lectures and laboratory work.

### 18, 19, 20. Physical Chemistry.

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Mon., Tu., Th., at 11.20. Professor BUCHER.

Lectures and laboratory work.

### [21, 22. Organic Chemistry, advanced course.]

Three hours. First and Second Terms. Elective for Graduates. Not offered in 1905-06. Professor BUCHER.

[23. *Inorganic Chemistry, advanced course.*]

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. Professor BUCHER.

24, 25, 26. *Organic Preparations, advanced course.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Professor BUCHER.

27, 28, 29. *Inorganic Preparations, advanced course.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates, who have passed in 10, 11, 12. Professor BUCHER.

30, 31, 32. *Research Work in Chemistry.*

Three hours, or more. Through the year. Elective for Graduates. Professor BUCHER.

33, 34, 35. *Conference on Special Topics in Chemistry.*

One hour. Through the year. Elective for approved students. Professor BUCHER.

36, 37, 38. *Conference on Special Topics in Chemistry.*

One hour. Through the year. Elective for approved students. Professor APPLETON.

## VI. CIVIL ENGINEERING.

Professors HILL† and BLANCHARD, Mr. DROWNE.

*All courses in this department except 16 are required of candidates for the degree of Bachelor of Science in Civil Engineering; all except 1, 2, 3, and 32, 33 are elective for other students.*

*A thesis on a professional subject is required before graduation of all candidates for the degree of Bachelor of Science in Civil Engineering. The thesis must embody either a design or a review of an engineering plant, appliance, process, or structure, or the results of an experimental investigation.*

1 2, 3. *Lettering.*

One hour. Two hours of drafting. Through the year. 1st div. Tu., 2.20 to 4.20; 2d div. Fri., 10.20 to 12.20. Professor BLANCHARD.

Offers sufficient practice in a few simple forms of letters to enable the student to do acceptable work in the drafting room.

†On leave of absence during the academic year 1905-06.

*4, 5, 6. Surveying, elementary course.*

Three hours. Usually six hours of field work or drafting. Through the year. Elective for students who have passed in Mathematics 1, 2 and 3, and in Drawing 1 or 2. *Mon., Fri., 2.20 to 5.20.* Professor BLANCHARD and Mr. DROWNE.

Designed to give the theory and practice of plane surveying. Use of tape, compass, level, and transit. Adjustments of instruments. Lectures, recitations, field work, and drafting.

*7. Topographical Drawing.*

Three hours. Six hours of drafting. Second Term. Elective for Juniors and Seniors who have passed in Drawing 1 or 2. *Wed., Th., 2.20 to 5.20.* Mr. DROWNE.

Pen and colored topography. Hill shading by different methods, contour drawing, topographic map making, conventional signs for structural materials.

*8, 9. Surveying, advanced course.*

Three hours and one hour. Second and Third Terms. Elective for students who have passed in 4 and 5. *Wed., at 8.* Professor BLANCHARD and Mr. DROWNE.

Topography and hydrography; city surveying. Methods as in 4, 5, 6. Use of stadia, plane table, sextant, and barometer. Precise base-line measurements with steel tape. Course 8 is taken during the spring recess.

*10, 11, 12, 13. Railroad Engineering.*

Two, four (eight hours of field work), three, and three hours. First, First, Second, and Third Terms. Elective for students who have passed in 6 and 9. First Term, *Tu., Wed., Th., at 8,* and *Wed., from 9.20 to 5.20.* Second Term, *Tu., Wed., Fri., at 9.20.* Third Term, *Mon., Wed., Fri., at 10.20.* Professor BLANCHARD and Mr. DROWNE.

Theory, location, construction, and economics. Methods as in 4, 5, 6. First Term, railroad curves and practical problems; actual location of a line about two miles long, map, and estimate of cost. Second Term, railroad track and track work, ties, ballast, rails, frogs, switches, etc.; maintenance of way department; methods of work. Third Term, earthwork and its cost; economics of location.

*14. Hydraulic Engineering.*

Three hours. Second Term. Elective for Juniors and Seniors. *Tu., Th., Fri., at 8.* Professor BLANCHARD.

Consideration of water supply mainly from a sanitary standpoint. A general course designed to give the chemical and biological aspects of water supply without laboratory work. Lectures, recitations, and seminary work.

### 15. *Geodesy.*

Three hours. One hour of recitation and five hours of computation. Third Term. Elective for students who have passed in 6 and 9 and Astronomy 5. *Wed., at 11.20; Tu., 9.20 to 11.20; Th., 3.20 to 6.20.* Mr. DROWNE.

Problems in geodetic surveying. Sufficient theory for a proper understanding of the formulæ used in geodetic computations. Lectures and computations.

### [16. *Municipal Improvements.*]

Three hours. First Term. Elective for Juniors and Seniors. Offered only if ten or more elect the course. Not offered in 1905-06. Professor HILL.

Economic and social aspects of sewerage, water works, pavements, etc.

### 17. *Hydraulic Engineering.*

Three hours. Third Term. Elective for students who have passed in Mathematics 6, Mechanics 2, and Drawing 1. *Mon., Tu., Th., at 8.* Professor BLANCHARD.

Supplements Mechanics 2, which gives the theoretical treatment of the subject. Consideration of water supply mainly from an engineering standpoint. Irrigation, pumps, and pumping machinery. Construction of dams and reservoirs. Lectures, recitations, and seminary work.

### 18. *Sanitary Engineering.*

Three hours. Third Term. Elective for students who have passed in Mathematics 6, Mechanics 2, and Drawing 1. *Mon., Tu., Th., at 9.20.* Professor BLANCHARD.

Sewerage and house drainage. Chiefly theory of sewerage, with occasional problems in design. Treatment and disposal of sewage, stream pollution, appliances used in construction and maintenance; amount and velocity of flow; house drainage and its appliances; garbage collection and disposal. Lectures, recitations, and seminary work.

NOTE: Courses 14, 17, and 18 cover the general subject of sanitation.

### 19. *Roads and Pavements.*

Three hours. Third Term. Elective for Sophomores, Juniors, and Seniors. *Mon., Tu., Th., at 11.20.* Professor BLANCHARD.

Economics and location of country roads. Surveys, grades, drainage, and foundations. Construction of roads of earth, gravel, and broken stone. Economics and design of street pavements of asphalt, brick, cobble-stone, stone-block, and wood-block. Methods of testing road materials. Roads and pavements in foreign countries.

[20, 21, 22. *Laboratory Investigations.*]

Three hours. Through the year. Elective for students who have passed in Mathematics 6, Mechanics 1, and Drawing 1. Not offered in 1905-06. Professor HILL.

Use and adjustment of instruments, testing materials, stereotomy.

NOTE: In 1905-06 students in Civil Engineering will take Mechanical Engineering 22 in place of Civil Engineering 20 and 21.

**23. Simple Framed Structures.**

Three hours. First Term. Elective for students who have passed in Mathematics 6, Mechanics 1, and Drawing 1 or 2. *Mon., Tu., Th. at 9.20. Mr. DROWNE.*

The standard forms of simple roof trusses. Calculation of stresses due to dead, snow, and wind loads by analytical methods. Calculation of stresses in Pratt, Howe, Warren, and parabolic trusses due to dead, wind, uniform live, excess panel live, and locomotive wheel loads, by analytical methods. Miscellaneous trusses, skew bridges, influence lines, cranes, trussed bents, and towers. Lectures, recitations, and seminary work.

**24. Higher Framed Structures.**

Two hours. Second Term. Elective for students who have passed in **23. Tu., Th. at 9.20. Professor BLANCHARD.**

Continuous bridges. Theorem of three moments, swing bridges, calculation of stresses in continuous and non-continuous centre-bearing swing bridges, draw-span machinery, cantilever bridges, and suspension bridges. General analysis of three-hinged, two-hinged, and fixed-end arches. Lectures, recitations, and seminary work.

**25. Structural Details.**

Three hours. First Term. Elective for students who have passed in Mathematics 6, Mechanics 1, and Drawing 1 or 2. *Mon., Tu., Fri. at 8. Professor BLANCHARD.*

Riveted joints, roof details, tension members, combined direct and bending stresses, secondary stresses, columns under direct and eccentric loading. Details of wooden structures, plate girder, parabolic highway, pin-connected, and riveted Pratt truss railroad bridges. Construction of viaducts and elevated railroads. Steel mill-building and high building construction. Comparison of standard structural specifications. Lectures and computations.

**26. Roof Design and Graphic Statics.**

Three hours. Six hours of drafting. First Term. Elective for students who are taking 23 and 25. *Mon., Tu., Th., 10.20 to 12.20. Mr. DROWNE.*

Graphic determination of centre of gravity and moment of inertia of combinations of structural shapes. Determination of stresses in simple

roof trusses by graphical methods. Moment and shear diagrams for the determination of stresses in plate girder bridges, Pratt trusses, and bridge trusses with inclined chords. Complete design with shop drawings of a fifty to seventy foot roof truss. Revision and discussion of checked drawings. Drawing and computations. Inspection trips.

### *27, 28. Bridge Design.*

Four and three hours. Eight and six hours of drafting. Second and Third Terms. Elective for students who have passed in 23, 25, 26. Second Term, *Mon., 9.20 to 12.20, Tu., at 8, Wed., 2.20 to 6.20. Third Term, Tu., Th., 2.20 to 5.20.* Mr. DROWNE.

Detail design, with shop drawings, of a heavy plate girder railroad bridge. General design and shop drawings of a two hundred foot parabolic highway bridge. General class design of a wooden trestle. Lectures on American and English shop practice, the esthetic design of bridges, design of stand pipes and elevated tanks, and American methods of erection of bridges and structures. Drawing, computations, field excursions, and seminary work or lectures.

### *29. Reinforced Concrete Structures.*

One hour. Second Term. Elective for students who have passed in Mathematics 6 and Mechanics 1. *Th., at 10.20.* Professor BLANCHARD.

Properties of reinforced concrete. Theory and design of reinforced concrete beams and arches. Systems of reinforcement. Methods of construction.

### *30. Masonry Structures.*

Three hours. One hour of recitation and four hours of drafting. Second Term. Elective for students who have passed in Mechanics 1 and Drawing 1. *Mon., at 8; Fri., 2.20 to 6.20.* Mr. DROWNE.

Static and elastic theory of the masonry arch. Design of a stone arch. Determination of the forms and dimensions of stones in a plateband arch. Theory and design of retaining walls, and of earth and high masonry dams.

### *31. Foundations.*

Two hours. Third Term. Elective for students who have passed in Mechanics 1. *Wed., Fri., at 9.20.* Mr. DROWNE.

Soundings and borings, foundation-beds, deposition of concrete under water, timber foundations, coffer dams, open caissons, Cushing cylinder piers, pile formulæ, driving and foundations, pneumatic caissons of wood and steel, open dredging, Poetsch freezing process, foundations in quicksand, foundations for high buildings, theory and design of piers for deep foundations.

### 32, 33. *Engineering Jurisprudence.*

One hour. Second and Third Terms. Second Term, *Fri. at 9.20*; Third Term, *Fri. at 8*. Elective for Seniors who are studying Mechanical and Electrical Engineering. Professor BLANCHARD.

Essential elements of a contract, the parties to a contract, considerations, bids and bidders, work for private parties and public work. Employment of engineers, liability of the engineer as a professional man; when his functions are judicial; when a public officer. Real property, water rights, ownership, rights of way, boundaries, incorporeal rights, and franchises. Engineering specifications and accompanying documents.

### 34. *Rock Excavation and Tunnelling.*

One hour. Second Term. Elective for students who have passed in 13 and in Mechanics 1. *Tu., at 10.20*. Professor BLANCHARD.

Various ways of excavating rock and the principal methods of tunnelling.

## VII. COMPARATIVE ANATOMY.

Professors MEAD, GORHAM, and WILLIAMS, Dr. SULLIVAN, Dr. FULTON, Dr. PERKINS, Dr. PEGRAM, Miss SHOREY.

### 1. *Introductory Course.*

Three hours. Six hours of attendance. Through the year. Elective for Undergraduates. *Mon., Tu., Th., 2.20 to 4.20*. Professor GORHAM.

Designed for purposes of general culture as well as for an introduction to further work in this department. Laboratory work in gross and minute anatomy and physiology; introduction to scientific methods; the structure and functions of animals; the general principles of biology.

### 2. *Comparative Anatomy of Vertebrates.*

Three hours. Six hours of attendance. Through the year. Elective for Sophomores, Juniors, and Seniors, who have passed in 1, 20 or 21. *Tu., Fri., Sat., at 10.20*. Professor WILLIAMS.

Critical and comparative study of the vertebrate organs, with special reference to the structure of man. In addition to the regular lectures, occasional lectures by physicians and others who have given attention to certain special subjects. A limited number of students are permitted to attend the clinics at the Rhode Island Hospital.

### 3. *Bacteriology.*

Three hours. Six hours of attendance. First Term. Elective for Juniors and Seniors. *Mon., Wed., Th., at 10.20*. Professor GORHAM.

Preparation and microscopic study of bacteria; the preparation of culture media; isolation, systematic study and determination of unknown species; qualitative and quantitative biological examination of water, milk, air, and soil; methods of determining pathogenic properties of bacteria; methods of sterilization and disinfection; special work on pathogenic forms.

#### *4. Histology.*

Three hours. Six hours of attendance. Second Term. Elective for Juniors and Seniors who have passed in 1, 20 or 21. Professor WILLIAMS.  
Microscopic anatomy of tissues.

#### *5. Advanced Histology.*

Three hours. Six hours of attendance. Third Term. Elective for Juniors and Seniors who have passed in 4. *Wed., Th., 2.30 to 5.20.* Dr. FULTON.

#### *6. Comparative Anatomy of Invertebrates.*

Three hours. Six hours of attendance. Third Term. Elective for students who have passed in 1, 20 or 21. Professor WILLIAMS.

Laboratory course in the comparative anatomy of the lower animals.

#### *7. Chemical Physiology.*

Three hours. Six hours of attendance. First and Second Terms. Elective for Juniors and Seniors who have passed in Chemistry 2. *Tu., Fri., Sat., at 10.20.* Dr. SULLIVAN.

The chemistry of the proteids, carbohydrates and fats; of salivary, gastric, and pancreatic digestion; of the blood, bile, and urine; the analysis of milk; toxicology.

#### *8. Physical Physiology.*

Three hours. Six hours of attendance. Third and First Terms. Elective for Juniors and Seniors who have passed in 7. *Mon., Wed., Th., at 11.20.* Dr. SULLIVAN.

The physiology of muscle and nerve; the physics and physiology of the circulatory, respiratory, and alimentary systems; the causes and theories of sleep; the physiology of the special senses.

#### [*9. Anatomy of the Nervous System.*]

Three hours. Six hours of attendance. Through the year. Elective for Juniors and Seniors who have passed in 1, 20 or 21. Not offered in 1905-06. Alternates with 10. Professor MEAD.

The gross anatomy and the microscopic structure of the nervous system in vertebrates, especially in man; phylogeny, embryology, and physiology of the nervous system, and special nerve methods in micro-technic.

#### *10. Comparative Embryology.*

Three hours. Six hours of attendance. Through the year. Elective for Juniors and Seniors who have passed in 1, 20 or 21. Not to be offered in 1906-07. Alternates with 9. Professor MEAD.

Laboratory work. Designed to give a general idea of the principles of embryological development and of heredity, illustrated by the fertilization and cleavage of the egg, metamorphosis, and organ formation. Special attention given to the origin and development of the human body.

*11. Biological Theories and Biological Problems.*

Weekly seminary. Through the year. Elective for Graduates. Professor MEAD.

*12. Bacteriology, advanced course.*

Through the year. Elective for Graduates. Laboratory work and seminary. Professor GORHAM.

*13. Physiology, advanced course.*

Through the year. Elective for Graduates who have sufficient knowledge of chemistry and physiology. Prescribed reading and seminary work. Dr. SULLIVAN.

*14. Human Anatomy.*

Through the year. Elective for Graduates. Laboratory instruction. Dr. PERKINS and Dr. PEGRAM.

A course in practical dissection. Students will also have an opportunity to attend certain operations at the hospital and to be present at autopsies.

*15. Special Advanced Work.*

Through the year. Elective for Graduates. Special advanced or research work arranged to meet the requirements of individual students.

*20. General Biology.*

Three hours. Through the year. Six hours of attendance. Elective for all students in the Women's College. Alternates with 21. Not to be offered in 1906-07. Miss SHOREY.

Designed to give a general survey of the animal kingdom and its development by a study of the structure and habits of the organism, the development of the respiratory, circulatory, digestive, reproductive, and nervous systems from the lowest to the highest forms, adaptation to environment, and relation to other forms. Theories of evolution. Lectures, laboratory work, and excursions.

[*21. Anatomy and Physiology.*]

Three hours. Through the year. Six hours of attendance. Elective for all students in the Women's College. Alternates with 20. Not offered in 1905-06. Miss SHOREY.

Lectures and laboratory work in gross anatomy, histology, and physiology; intended to acquaint the student with the structure and functions of the human body, and with the general principles of biology.

*22. Household Economics.*

Three hours. Through the year. Six hours of attendance. Elective for Juniors and Seniors in the Women's College, and for other women who have passed in 3, 20 or 21. Miss SHOREY.

Chemistry, and nutritive, physiological, and economic values of food stuffs, principles of home and municipal sanitation, bacteria in relation to the household, personal hygiene. Lectures, laboratory work, visits to hospitals and public works.

## VIII. DRAWING.

Professor RANDALL, Messrs. BROOKS, CLOUGH, and BURR.

### 1. Elementary Mechanical Drawing, and Descriptive Geometry.

Four hours. Through the year. Two hours of recitation and six hours of drawing during the First Term, and three hours of recitation and three hours of drawing during the Second and Third Terms. Required of Freshmen who are candidates for the degree of Bachelor of Science. *Mon., Tu., Wed., Th., Fri., Sat., at 9.20 and 10.20.* Professor RANDALL, Messrs. BROOKS, CLOUGH, and BURR.

Nature, care, and use of drafting instruments; plane problem construction; theory of orthographic projection; discussion, proof, and graphic solution of problems in descriptive geometry relating to the point, line, and plane, to line and surface generation and classification, to surface tangency, and to intersections and developments; application of the principles of descriptive geometry in isometric drawing, in shades and shadows and perspective, in machine drawing, and in practical engineering problems.

### 2. Elementary Mechanical Drawing.

Three hours. Six hours of drawing. First Term. Elective for Freshmen who are candidates for degree of Bachelor of Philosophy, and for Sophomores, Juniors, and Seniors. *Mon., Wed., Th., at 10.20.* Professor RANDALL, Messrs. CLOUGH and BURR.

Nature, care, and use of drafting instruments; plane problem construction; theory of orthographic and isometric projection.

### 3. Descriptive Geometry.

Three hours. Two hours of recitation and two hours of drawing. Second and Third Terms. Elective for Freshmen who are candidates for the degree of Bachelor of Philosophy, and for Sophomores, Juniors and Seniors who have passed in 2. *Mon., Wed., Th., at 10.20.* Professor RANDALL, Messrs. CLOUGH and BURR.

Discussion, proof, and graphic solution of problems in descriptive geometry.

### 4, 5. Machine Drawing.

Three hours. One hour of recitation and eight hours of drawing. First and Second Terms. Required of candidates for the degree of Bachelor of Science in Mechanical Engineering and Electrical Engineering. Elective for students who have passed in 1 or 3. *Tu. at 12.20. Mon., Th., 2.20 to 5.20.* Mr. BROOKS.

Study and representation of machine parts; principles of elementary machine design; sketches, detail and assembly drawings of machines; practice in reading drawings.

### *6. Elements of Machine Design.*

Three hours. One hour of recitation and five hours of drawing. Third Term. Elective for students who have passed in 5. Mr. BROOKS.

### *7. Shades and Shadows and Perspective, and Architectural Drawing.*

Three hours. Six hours of drawing. Through the year. Elective for students who have passed in 1 or 3. Given at the University during the First Term, and at the Rhode Island School of Design during the Second and Third Terms. Professor RANDALL.

Problems relating to the shade and shadow and perspective of elementary magnitudes; principles of architectural design and composition; working drawings and ordinary office practice.

### *8. Mechanical Drawing, practical.*

Three hours. Six hours of drawing. Second and Third Terms. Elective for students who have passed in 2. Mon., Wed., Th., at 10.20. Mr. BROOKS.

For students desiring to continue their course in drawing without taking the theoretical work of descriptive geometry. Intersections and developments; third quadrant projection; sketching and dimensioning; conventional methods of representing machine parts; detailing and assembling; exercises in reading drawings; architectural drawing, including the drawing of plans and elevations, and the details of building construction.

## MECHANICS

### *1. Mechanics of Solids.*

Three hours. Through the year. Required of all candidates for the degree of Bachelor of Science. Elective for students who have passed in Mathematics 4 and 5, and who are taking Mathematics 6. Mon., Tu., Th., at 11.20. Professor RANDALL and Mr. BROOKS.

Statics; dynamics, including rectilinear and curvilinear motion, virtual velocity, moment of inertia, work, energy and power, friction; strength of materials, including tension, compression, shearing, torsion, flexure, arches, and methods of graphical solution of problems.

### *2. Mechanics of Fluids.*

Three hours. First and Second Terms. Required of all candidates for the degree of Bachelor of Science. Elective for students who have passed in 1. Wed., Fri., Sat., at 11.20. Professor RANDALL.

Hydrostatics of liquids, including pressure of liquids in tanks and reservoirs, earth pressure and retaining walls, immersion and flotation; hydrodynamics, including steady flow, impulse and resistance.

## IX. ENGLISH LITERATURE AND LANGUAGE.

Professors BRONSON, SEARS<sup>†</sup>, POTTER, DAMON, BENEDICT, CROSBY, and HUNTINGTON, Messrs. LATHAM, PHILLIPS, GROSE, and MITCHELL.

### *1.\* Rhetoric and Composition.*

Three hours. Through the year. Required of all Freshmen. 1st, 2d, and 3 div. Mon., Tu., Th., at 11.20; 4th, 5th, and 6th div. Mon., Wed., Fri., at 12.20. Professors DAMON and HUNTINGTON, Messrs. LATHAM, PHILLIPS, GROSE, and MITCHELL.

Lectures and recitations upon the fundamental laws of style, with special emphasis upon usage. Prescribed reading and themes. Aims to give the student a clear and correct style and some critical standards.

### *2.\* English Composition, second course.*

Three hours. Through the year. Elective for Sophomores who have credit for 1. Mon., Wed., Th., at 10.20. Professor BENEDICT and Mr. LATHAM.

Lectures, recitations, and prescribed reading. Fortnightly themes and other written exercises. Intended to supplement the training given in 1, and to develop further the power of exact and lucid statement.

### *3.\* English Composition, advanced course.*

Three hours. Through the year. Elective for Juniors and Seniors, and for Sophomores who have passed with distinction in 1. With the consent of the instructor, the course may be repeated. Mon., Wed., Th., at 10.20. Professor DAMON, assisted by Mr. GROSE.

Attempts, by means of frequent practice in composition and criticism, to develop ease and flexibility of style and clarity and vigor of thought.

### *4.\* Argumentative Composition.*

Three hours. Through the year. Elective for Juniors and Seniors who have credit for 1. Mon., Wed., Th., at 10.20. Professor HUNTINGTON, assisted by Mr. LATHAM.

Lectures on the principles and forms of argumentative composition; frequent practice in brief-drawing, and the writing of forensics and less formal arguments. Intended to develop the power of handling argumentative topics cogently and persuasively.

### *5. Argumentative Composition.*

Three hours. First Term. Elective for Juniors and Seniors who have credit for 1. Not open to students who have taken 4, or the course formerly known as 4, 5, 6. Mon., at 3.20, Fri., at 2.20. Professor HUNTINGTON, assisted by Mr. PHILLIPS.

The principles and forms of brief-drawing and forensic writing. Lectures, written exercises, briefs, and forensics. Intended to furnish a more rapid training than 4, for students who wish to begin debate as early as possible or who wish to go quickly over the fundamentals of argumentative composition.

<sup>†</sup> On leave of absence during the academic year 1905-06.

**6.\* Debate.**

Three hours. Second and Third Terms. Elective for a limited number of Juniors and Seniors who have done satisfactory work in 5 or in one term of 4. With the consent of the instructor, the course may be repeated. *Mon., 3.20 to 5.20; Fri., 2.20 to 4.20.* Professor HUNTINGTON, with the co-operation of the Professors of Political Economy, Social and Political Science, History, and Public Speaking.

Intended to train students in correct and vigorous oral presentation of ideas.

**7.\* Public Speaking.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. *Wed., Fri., Sat., at 11.20.* Professor CROSBY.

Principles of voice culture, vocal interpretation of literature, extempore speaking.

**8. Public Speaking, advanced course.**

One hour. Two hours of class-room work. First Term. Elective for a limited number of Seniors. Not to be offered in 1906-07. Professor CROSBY.

Reading the Bible, liturgy, and hymns.

**9.\* Old English.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Th., at 10.20.* Professor POTTER.

The essentials of Anglo-Saxon grammar; prose selections; *Béowulf*.

**10.\* Chaucer.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Tu., Th., Fri., at 3.20.* Professor BENEDICT.

Sufficient study of the language to enable the student to read Middle English intelligently; the more important poems of Chaucer; selections from Langland and Gower; Chaucer in literary history.

**11. English Literature, introductory course.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. *Tu., Th., Sat., at 12.20.* Professor BRONSON.

An outline course in the history of English literature, with reading and study of the greater writers.

**[12. English Literature, exclusive of the Drama, from 1400 to 1600.]**

Three hours. Through the year. Elective for students who have credit for one course in English literature. Not offered in 1905-06. Professor BENEDICT.

Medieval literary forms and the transition to the modern period; romance, ballad, allegory, satire, Elizabethan novels and lyrics.

**13. *History of the Drama in England.***

Three hours. Through the year. Elective for students who have credit for one course in English literature. Not to be offered in 1906-07. *Mon., Wed., Fri., at 12.20.* Professor POTTER.

The drama as a literary type, and its history in England to 1642.

[**14. *Shakspere.***]

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Not offered in 1905-06. Professor POTTER.

Careful study of a few plays, with special attention to exact interpretation.

**15. *Shakspere.***

Three hours. Through the year. Elective for Juniors and Seniors.

Shakspere as dramatist and poet. Reading of all the plays. *Tu., Th., Sat., at 12.20.* Professor CROSBY.

**16. *English Literature, exclusive of the Drama, from 1600 to 1660.***

Three hours. Through the year. Elective for students who have credit for one course in English literature. Not to be offered in 1906-07. *Tu., Fri., Sat., at 10.20.* Professor BRONSON.

The decline of the Elizabethan spirit, Puritanism and Anglicanism in literature, the "metaphysical" and mystical poets, the cavalier lyrists. All the English poems and the more important prose works of Milton.

[**17. *English Literature from 1660 to 1798.***]

Three hours. Two meetings a week, and a third meeting at the pleasure of the instructor. Through the year. Elective for students who have credit for one course in English literature. Not offered in 1905-06. Professor BRONSON.

The Restoration drama, the classical school, development of the essay and the novel, the beginnings of romanticism.

[**18. *English Prose of the Nineteenth Century.***]

Three hours. Two meetings a week, and a third meeting at the pleasure of the instructor. Through the year. Elective for Sophomores, Juniors, and Seniors. Not offered in 1905-06. Professor DAMON.

Novels, essays, and miscellaneous prose writings. The influence of the social and intellectual tendencies of the period upon style and substance.

**19. *English Literature from 1798 to 1832.***

Three hours. Two meetings a week, and a third meeting at the pleasure of the instructor. Through the year. Elective for Sophomores, Juniors, and Seniors. Not to be offered in 1906-07. *Mon., Tu., Th., at 11.20.* Professor BENEDICT.

The romantic revolt in its critical and imaginative phases; influence of the French Revolution; individualism in form and spirit.

**20. English Literature from 1832 to 1892.**

Three hours. Two meetings a week, and a third meeting at the pleasure of the instructor. Through the year. Elective for Sophomores, Juniors, and Seniors. Not to be offered in 1906-07. *Wed., Fri., Sat., at 11.20.* Professor DAMON.

Realism; influence of science and democracy; modifications of romanticism in prose and poetry; tendencies at the end of the century.

**[21. Victorian Poets.]**

Three hours. Through the year. Elective for students who have credit for one course in English literature. Not offered in 1905-06. Professor CROSBY.

A detailed study of Tennyson, Browning, Arnold, Clough, Rossetti, Morris, and Swinburne.

**22. American Literature.**

Three hours. Two meetings a week, and a third meeting at the pleasure of the instructor. Through the year. Elective for students who have credit for one course in English literature. *Mon., Tu., Th., at 2.20.* Professor BRONSON.

American literature from the beginning, in its relation to American life and to English literature.

**23. Seminary in English Literature.**

One two-hour session, counting as three hours. Through the year. Elective for Graduates, and for a limited number of Seniors who have passed with credit in two courses in English literature. Professor POTTER.

Subject in 1905-06: *Spenser.* Critical reading, with investigation of special problems of sources and formative influences, relation to other literary movements of the Elizabethan period, and influence on later poets.

## X. GEOLOGY.

Mr. BROWN.

**[1, 2. Mineralogy.]**

Three hours. First and Second Terms. Elective for Sophomores and Juniors. Not offered in 1905-06.

A course in the recognition and determination of the commoner minerals and their occurrence in rocks. Lectures and laboratory work.

**3. Mineralogy and Lithology.**

Three hours. Third Term. Two hours of lectures, two hours of laboratory work. Required in the Sophomore year of candidates for the degree of Bachelor of Science in Civil Engineering. Elective for Sophomores, Juniors, and Seniors. *Mon., Wed., Fri., at 12.20.*

Determination of the common rock-forming minerals and the general types of rocks. Building stones; their distribution, weathering qualities, and methods of preservation.

[4, 5. *Petrography.*]

Three hours. Second and Third Terms. Elective for Juniors and Seniors who have passed in 1, 2 or 3, and Physics 4. Not offered in 1905-06.

Study of the optical properties of minerals and their determination with the petrographic microscope; determination of rocks by means of the petrographic microscope; discussion of the fundamental principles of the origin and classification of rocks.

6. *Dynamical and Structural Geology.*

Three hours. First Term. Required in the Senior year of candidates for the degree of Bachelor of Science in Civil Engineering. Elective for Juniors and Seniors. *Mon., Wed., Fri., at 12.20.*

Five field trips are held in conjunction with the work and each student is required to take detailed field notes of the region visited.

NOTE: After 1905-06, courses 1, 2 or 3 will be required in preparation for 6.

7. *Historical Geology.*

Three hours. Second Term. Elective for Juniors and Seniors who have passed in 6. *Mon., Wed., Fri., at 12.20.*

Review of the changes which the earth has undergone during its development. Study of the types of life characteristic of the different periods and of the principles of organic evolution which they illustrate.

9. *Field Geology.*

Three hours. Six hours of attendance in the laboratory, or nine in the field. First Term. Elective for Seniors and Graduates. *Mon., Tu., Th., at 2.20.*

Geological maps, their use, and study in the methods of construction. Practice in the actual working out of surface geology in an assigned definite area. Reports and thesis.

NOTE: After 1905-06, 6 and 7 will be required in preparation for 9.

10. *Economic Physiography.*

Three hours. Third Term. Elective for Seniors who have passed in 6. *Mon., Tu., Th., at 2.20.*

The classification of land forms; their origin, growth and decay; their geographical distribution. With special reference to the influence of physiography upon the economic development of a country.

[13. *Physiography.*]

Weekly seminary through the year. Elective for Graduates and for those who have had sufficient preliminary training in physiography. Not offered in 1905-06.

NOTE: For courses in Physical Geography see Astronomy 22, 23, 24.

## XI. THE GERMANIC LANGUAGES AND LITERATURES.

Professors CROWELL and JONAS, Messrs. NORRIS and ASHLEY.

### 1. *Introductory Course.*

Three hours. Through the year. Required of all students not presenting German for admission. 1<sup>st</sup> and 2<sup>d</sup> div. Tu., Wed., Sat., at 9.20; 3<sup>d</sup> div. Mon., Th., Fri., at 9.20; 4<sup>th</sup> div. Mon., Tu., Th., at 11.20; 5<sup>th</sup> div. Tu., Th., Sat., at 12.20. Messrs. NORRIS and ASHLEY.

Reading, grammar, composition, dictation, sight reading. Selections in prose and poetry from standard authors.

### 2. *Intermediate Course.*

Three hours. Through the year. Required of all Freshmen presenting elementary German for admission. 1<sup>st</sup> div. Wed., Fri., Sat., at 11.20; 2<sup>d</sup> div. Tu., Fri., Sat., at 10.20. Mr. NORRIS.

Selected works of classical and modern authors. Study of syntax based upon the text.

### 3, 4, 5. *Drama of the Classic Period.*

Three hours. Through the year. Elective for students who have passed in 1. Each term may be elected independently. 1<sup>st</sup> div. Mon., Wed., Th., at 10.20; 2<sup>d</sup> div. Wed., Fri., Sat., at 11.20. Professor JONAS.

Lessing, Schiller, Goethe. Two dramas of each author. Primarily a literary course, but includes some study of the language.

### 6. *Modern Prose.*

Three hours. Through the year. Elective for students who have passed in 1. Tu., Fri., Sat., at 10.20. Professor JONAS.

Representative pieces by the best nineteenth century authors, including history, biography, legend, and fiction. Valuable for students using German sources in other subjects. Sight reading a prominent feature.

### 7. *Advanced Course in Standard Authors.*

Three hours. Through the year. Elective for students who have passed in 2, and for students presenting advanced German for admission. Mon., Tu., Th., at 11.20. Mr. NORRIS.

Selections from the dramas of Lessing, Schiller, and Goethe. Schiller's *Geschichte des Dreissigjährigen Kriegs*, Goethe's *Dichtung und Wahrheit*, etc.

### 8. *Composition.*

One hour. Through the year. Elective for students pursuing the regular courses of the second or third year in German, and for students who have passed in 10 or 11. Tu., at 11.20. Professor JONAS.

Most appropriately taken in connection with 3, 4, 5 or 6.

[9. *Advanced Composition.*.]

One hour. Through the year. Elective for students who have passed in 8, and who are pursuing or have completed a third year course. Not offered in 1905-06. Professor CROWELL.

[10. *German Masterpieces I.*]

Three hours. Through the year. Elective for students who have passed in 3, 4, 5 or 7. Not offered in 1905-06. To be offered in 1906-07. Professor CROWELL.

*Goethe's Faust*, Parts I. and II., with a glance at recent dramas of kindred interest. With 11 presents those productions of the great German writers which deal with important psychological and moral problems.

11. *German Masterpieces II.*

Three hours. Through the year. Elective for students who have passed in 3, 4, 5 or 7. *Mon., Th., Fri.*, at 9.20. Professor CROWELL.

Wolfram von Eschenbach's *Parzival*, Goethe's *Egmont*, Schiller's *Wal-enstein*, Lessing's *Nathan der Weise*.

12, 13, 14. *German Literature.*

Three hours. Through the year. Elective for students who have passed in 7, 10, or 11. *Tu., Th., Sat.*, at 12.20. Professor CROWELL.

A three years' course in literature covering the principal literary movements in Germany from the earliest times to the present. Lectures, reports on assigned topics, extended reading. Subject for 1905-06: The Romantic School.

[15. *Middle High German.*]

Three hours. Through the year. Elective for students who have passed in 10, 11, or 14. Not offered in 1905-06. Professor CROWELL.

Paul's *Mittelhochdeutsche Grammatik*. *Das Nibelungenlied*, Hartmann von Aue's *Der arme Heinrich*, Wolfram von Eschenbach's *Parzival*, lyrics of Walther von der Vogelweide.

16. *Old High German.*

Two hours. Through the year. Elective for Graduates. Professor JONAS.

Braune's *Althochdeutsche Grammatik* and *Althochdeutsches Lesebuch*.

17. *Germanic Mythology.*

One hour. Through the year. Elective for Juniors, Seniors, and Graduates. Professor CROWELL.

Ancient Germanic beliefs and superstitions as to the soul, spirits, demons, and gods. Discussions based on E. Mogk's *Germanische Mythologie*.

[18. *Germanic Philology.*]

One hour. Through the year. Elective for Graduates. Not offered in 1905-06. Professor CROWELL.

Discussion based on Paul's *Grundriss der Germanischen Philologie*.

[19. *German Poetry.*]

Three hours. Through the year. Elective for students who have passed in 10 or 11. Not offered in 1905-06. Professor JONAS.

Comparative study of representative poems. First Term, epics; Second Term, ballads; Third Term, lyrics.

20. *Old Norse.*

Two hours. Through the year. Elective for Graduates. Professor CROWELL.

Holthausen's *Altisländisches Elementarbuch*, Wilken's *Prosaische Edda*, *Die Lieder der Edda*, edited by Sijmons and Gering. Students electing Old Norse should also take Germanic Mythology.

[21. *Gothic.*]

Two hours. Through the year. Elective for Graduates. Not offered in 1905-06. To be offered in 1906-07. Professor CROWELL.

Discussion of East Germanic languages and of Gothic etymology. Reading of extracts in Streitberg's *Gotisches Elementarbuch*, or Braune's *Gotische Grammatik*. Students electing Gothic should also take Germanic Philology.

## XII. GREEK LITERATURE AND HISTORY.

Professors MANATT and ALLINSON†, Mr. PAINÉ.

A, B, C. *Elementary Course.*

Three hours. Through the year. Elective for students who have not taken Greek before entering college. *Tu., Th., Sat., at 12.20.* Professor MANATT and Mr. PAINÉ.

Aims to cover as much as possible of the entrance requirements in Greek. Supplemented by private study in the summer, it should enable the student to take up courses 1 and 2 in the following year. He may then by private study complete the entrance requirements in Homer in time to take up course 3 in the spring.

1. *Lysias.*

Three hours. First Term. Elective for students who presented elementary and advanced Greek for admission, or who have taken Greek A, B, C and the additional work indicated above. *1st. div. Tu., Fri., Sat., at 10.20; 2d div. Tu., Th., Sat., at 12.20.* Professor MANATT and Mr. PAINÉ.

Select orations and practice in sight reading.

†On leave of absence during the academic year 1905-06.

## 2. *Plato.*

Three hours. Second Term. Elective for students who have taken Greek 1 or its equivalent. 1st div. Tu., Fri., Sat., at 10.20; 2d div. Tu., Th., Sat., at 12.20. Professor MANATT and Mr. PAINE.

Plato's *Apology* and *Crito*, with other selections for sight reading.

## 3. *Homer.*

Three hours. Third Term. Elective for students who have taken Greek 1 and 2 or equivalents. 1st. div. Tu., Fri., Sat., at 10.20; 2d div. Tu., Th., Sat., at 12.20. Professor MANATT and Mr. PAINE.

The *Odyssey*, four books; rapid reading of other books; lectures on the life of the Heroic Age as revealed in the poems and illustrated by recent archaeological research.

## 4. *Lucian.*

Three hours. First Term. Elective for Sophomores. Mon., Wed., Th., at 10.20. Mr. PAINE.

## 5. *Greek Lyric Poets.*

Three hours. Second Term. Elective for Sophomores. Mon., Wed., Th., at 10.20. Professor MANATT.

The chief remains of Greek lyric poetry from Alkman to Timotheos (not including Pindar) will be read.

## 6. *Dramatic Poets.*

Three hours. Third Term. Elective for Sophomores. Mon., Wed., Th., at 10.20. Mr. PAINE.

Lectures on the Greek drama. The *Prometheus* of Aeschylus, The *Antigone* of Sophocles.

## [7. *Plato and Aeschylus.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor ALLINSON.

*Republic*, book x; selections from books I-IX; *Agamemnon*.

## 8. *Homer.*

Three hours. First Term. Elective for Juniors and Seniors. Wed., Fri., Sat., at 11.20. Professor MANATT.

Advanced course in the *Iliad* or the *Odyssey* intended to serve as an introduction to prehistoric archæology and as a preparation for teaching Homer.

## [9. *Pindar and Bacchylides.*]

Three hours. Third Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor MANATT.

[10. *The Drama.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor ALLINSON.

The *Medea* of Euripides and the *Frogs* of Aristophanes, with rapid reading of one play of Æschylus for literary criticism.

11. *Herodotus.*

Three hours. Second Term. Elective for Juniors and Seniors. *Wed., Fri., Sat., at 11.20.* Professor MANATT.

12. *Thucydides.*

Three hours. Third Term. Elective for Juniors and Seniors. *Wed., Fri., Sat., at 11.20.* Professor MANATT.

[13. *Lucian.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor ALLINSON.

[14. *Demosthenes.*]

Three hours. Second Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor MANATT.

Speeches on the Crown; study of the Macedonian period and of Athenian political life.

[15. *Homer.*]

Three hours. Third Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor MANATT.

[16, 17, 18. *Homer.*]

Three hours. Through the year. Elective for Juniors and Seniors. Not offered in 1905-06. Professor MANATT.

The *Odyssey*, portions of the *Iliad* and the *Hymns* in the original, the remainder of the poems in translation.

19, 20. *Greek Composition.*

One hour. Second and Third Terms. Elective for Sophomores, Juniors, and Seniors. *Fri., at 2.20.* Mr. Paine.

21, 22. *Modern Greek.*

One hour. Second and Third Terms. Elective for Sophomores, Juniors, and Seniors. Professor MANATT.

23, 24, 25. *Greek Seminary.*

One two-hour session weekly. Through the year. Elective for Graduates and approved Seniors. Professor MANATT.

The subject to be treated will be determined at the opening of the academic year.

[26. *Attic Orators.*]

Two hours. First Term. Elective for Graduates and approved Seniors. Not offered in 1905-06. Professor MANATT.

Isæus, Greek historical inscriptions.

[27, 28. *Homer and Mycenaean Archaeology.*]

Two hours. First and Second Terms. Elective for Graduates and approved Seniors. Not offered in 1905-06. Professor MANATT.

[29. *Demosthenes.*]

Three hours. First Term. Elective for Graduates. Not offered in 1905-06. Professor MANATT.

Private speeches, selected to illustrate the workings of Athenian institutions.

30, 31, 32. *Hellenistic Greek.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Professor FOWLER and Mr PAIN.

For details see Biblical Literature and History 10, 11, 12.

[33. *Greek Life.*]

Three hours. First Term. Elective for Freshmen and Sophomores. Not offered in 1905-06. Professor MANATT.

The private and public life of the Greeks studied in the light of their literature and monuments. Syllabus, lectures, and prescribed reading, with frequent reports, written tests, and a thesis. No knowledge of Greek or Latin required. The course is continued in the Second and Third Terms as Latin 28, 29. The three terms together constitute the course called the History of Greek and Roman Life and Institutions.

34. *Greek Literature.*

Three hours. First Term. Elective for Freshmen and Sophomores. Mon., Tu., Th., at 11.20. Professor MANATT.

A brief history of the literature of the Greeks from Homer to Theocritus, together with study of the masterpieces in the best English translations. No knowledge of Greek or Latin required. This course is continued in the Second and Third Terms as Latin 30, and Greek 35. The three terms together constitute the course in Greek and Roman Literature, which alternates with Greek 33, Latin 28, 29.

35. *Later Greek (and Latin) Literature.*

Three hours. Third Term. A continuation of Greek 34 and Latin 30. Half of the term only will be given to Greek Literature. (See Latin 30.) Mon., Tu., Th., at 11.20. Professors MANATT and HARKNESS.

The Harkness Classical Club meets once a month for the reading of papers and for discussion. Arrangements also are made from time to time for public addresses. The membership is open to Graduates and Undergraduates.

### XIII. HISTORY.

Professors MACDONALD and MUNRO.

*The elective courses in History are regularly open only to those who have passed in 1; but, by special permission of the instructor, elective courses may be taken by Juniors and Seniors who are at the same time taking 1. The only elective courses in History open to Sophomores are 6 and 7.*

#### 1. *Mediaeval and Modern History of Europe.*

Three hours. First and Second Terms. Required in either the Sophomore or the Junior year of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy. 1st div. *Mon., Th., Fri., at 9.20; 2d div. Tu., Wed., Sat., at 9.20.* Professor MACDONALD.

A general survey of the history of western Europe from the time of the barbarian invasions to the Napoleonic wars. Work based upon a narrative text-book, supplemented by lectures, frequent written tests, and written reports and abstracts on assigned reading and topics for special investigation.

#### 2. *Spanish History.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. *Tu., Th., Sat., at 12.20.* Professor MUNRO.

Development of Spanish institutions, political and social; rise and greatness of Spain as a European power; its colonial system; its position with reference to the Reformation and the subsequent religious wars.

#### 3. *Islam and the Crusades.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates. *Tu., Th., Sat., at 12.20.* Professor MUNRO.

Social and political conditions in Europe and the East at the beginning of the Crusades; organization and internal condition of Islam; effects of the Crusades on the thought, life, and political development of Europe.

#### 4. *Period of the Renaissance.*

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Fri., at 12.20.* Professor MUNRO.

Preparation for the Renaissance in the intellectual and social life of Europe; spread of the revival; connection between the Renaissance and the Reformation; artistic and literary aspects of the movement.

#### 5. *Period of the Reformation.*

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Fri., at 12.20.* Professor MUNRO.

Early movements of dissent from the Roman Church; Protestant revolt in Germany, Switzerland, France, and England; political and social aspects of the Reformation; religious wars; the effects on religious belief and church organization.

### *6. The French Revolution.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates, and for Sophomores who have taken 1. *Mon., Wed., Fri., at 12.20.* Professor MUNRO.

Rise and progress of the Revolution in France; political and social conditions in Europe 1789-1815; permanent results of the Revolution, particularly its effect on political thought and practice.

### *7. European History since 1815.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates, and for Sophomores who have taken 1. *Tu., Th., Sat., at 12.20.* Professor MUNRO.

Political development of the more important states and their diplomatic relations; revolutions of 1830 and 1848; free trade movement in England; achievement of Italian unity; founding of the German Empire; Franco-Prussian war; the Eastern question, etc.

### *8, 9, 10. English Constitutional and Political History to 1689.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected independently. *Mon., Tu., Th., at 2.20.* Professor MUNRO.

Formation of the English constitution; establishment and growth of the church; relations with Scotland and Ireland; the Reformation; the Puritan Revolution.

### *[11, 12, 13. English Constitutional and Political History since 1689.]*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected independently. Not offered in 1905-06. To be offered in 1906-07. Professor MUNRO.

Foreign relations; development of party government and the cabinet system; social and political changes of the nineteenth century.

### *14, 15, 16. Seminary in European History.*

Three hours. One hour of class-room attendance. Through the year. Elective for Graduates and approved Seniors. Each term may be elected independently. Professor MUNRO.

Discussion of assigned subjects, reports of reading and investigation, and similar exercises.

### *[17. American History to 1763.]*

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. To be offered in 1906-07. Professor MACDONALD.

American colonial history as illustrative of the colonial policies of European states in the 16th-18th centuries; development of colonial and local forms of government; intercolonial wars; colonial slavery. Lectures, supplemented by assigned readings and detailed study of the texts of representative documents.

[18. *The American Revolution, 1763-1787.*]

Third Term. Elective for Juniors, Seniors, and Graduates. Except by consent of the instructor must be preceded by 17. Not offered in 1905-06. To be offered in 1906-07. Professor MACDONALD.

19, 20, 21. *History of the United States since 1787.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may, by the consent of the instructor, be elected separately. Not to be offered in 1906-07. *Wed., Fri., Sat. at 11.20.* Professor MACDONALD.

The organization of the national government and its administrative development; slavery; extension of national territory; the bank controversy; the Civil War; the reconstruction period. Third term devoted to the period from 1861 to the present. Methods of instruction as in 17 and 18.

22, 23, 24. *Research Course in American History.*

Three hours. One hour of class-room attendance. Through the year. Elective for Graduates and approved Seniors. Each term may, by the consent of the instructor, be elected separately. Professor MACDONALD.

Designed to afford training in historical investigation and practice in the use of sources. There is no formal examination, but each member of the class is expected to present each term a piece of written work, on an assigned topic, embodying the results of special research. The course presupposes a knowledge of 17, 18 or 19, 20, 21 but by special permission it may be taken by those who are at the same time taking 17, 18 or 19, 20, 21. The subjects vary from year to year, being chosen from the colonial and constitutional periods in alternate years. For 1905-06 the subjects are: First Term, "The critical period," 1781-1789; Second Term, The social development of the United States, 1780-1810; Third Term, The administration of John Quincy Adams.

25.\* *Principles of Historical Criticism and Research.*

One hour. Through the year. Elective for Graduates of one year's standing. Required of all candidates for the degree of Doctor of Philosophy in History. Professor MACDONALD.

First and Second Terms, the general principles of historical criticism and the literature of historical theory. Langlois and Seignobos's *Introduction to the Study of History* is used as a manual. Third Term, historical bibliography, the periods chosen varying from year to year.

## XIV. INDO-EUROPEAN PHILOLOGY.

Professor ALLINSON.†

[1. *General Introduction to the Study of Language.*]

Three hours. Third Term. Elective for Freshmen and Sophomores. Not offered in 1905-06.

Outline of the history of language. The Indo-European family. Adapted for students of ancient or modern languages. A continuation of Greek 34, Latin 30. The three terms together constitute the course in Greek and Roman literature and the History of Language. This year Greek 35 takes the place of Indo-European Philology.

[4. *Seminary in Comparative Philology.*]

One two-hour session weekly. Third Term. Elective for Graduates and approved Seniors. Not offered in 1905-06.

Intended for advanced students in Greek and Latin.

[7, 8, 9. *Sanskrit, elementary course.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06.

Whitney's *Grammar*, Lanman's *Reader*. Selections from the Vedic Hymns.

[10, 11, 12. *Sanskrit, advanced course.*]

One hour. Through the year. Elective for students who have passed in 4, 5, 6 or an equivalent. Not offered in 1905-06.

*Vedic Hymns* and other selections.

## XV. MATHEMATICS.

Professors DAVIS, MANNING, and SLOCUM, Messrs. CURRIER, CLOUGH, and OBEAR.

The Undergraduate courses 1-11 should be taken in the order in which they are printed. Courses 12, 13, 14 may be taken any time after the Freshman year. Courses 17-21 are designed for students who are taking or who intend to take engineering courses. Courses 22 to 26 are designed for Graduates.

3. *Algebra.*

Four hours. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who did not present Solid Geometry and Plane Trigonometry for admission. *Tu., Wed., Fri., Sat.; 1st and 4th div., at 8; 2d, 3d, 5th div., at 9.20.* Professors DAVIS and MANNING, Messrs. CURRIER, CLOUGH, and OBEAR.

†On leave of absence during the academic year 1905-06.

**1. *Geometry, Solid and Spherical.***

Four hours. Second Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who did not present Solid Geometry and Plane Trigonometry for admission. *Tu., Wed., Fri., Sat.; 1st and 4th div., at 8; 2d, 3d, and 5th div., at 9.20.* Professors DAVIS, MANNING, and SLOCUM, Messrs. CLOUGH and OBEAR.

**2. *Trigonometry.***

Four hours. Third Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who did not present Solid Geometry and Plane Trigonometry for admission. *Tu., Wed., Fri., Sat.; 1st and 4th div., at 8; 2d, 3d, and 5th div., at 9.20.* Professors MANNING and SLOCUM, Messrs. CURRIER, CLOUGH, and OBEAR.

**4. *Analytic Geometry.***

Three hours. First and Second Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. Elective for students who have passed in 1, 2, 3. *Mon., Wed., Fri., at 12.20.* Professor DAVIS.

**5. *Differential Calculus.***

Three hours. Third Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. Elective for students who have passed in 4. *Mon., Wed., Fri., at 12.20.* Professor DAVIS.

**6. *Integral Calculus.***

Three hours. First Term. Elective for students who have passed in 5. *Tu., Th., Sat., at 12.20.* Professor DAVIS.

**7. *Applications of the Differential Calculus.***

Three hours. Second Term. Elective for students who have passed in 5 and 6. *Tu., Th., Sat., at 12.20.* Professor DAVIS.

**8. *Applications of the Integral Calculus.***

Three hours. Third Term. Elective for students who have paseed in 6. *Tu., Th., Sat., at 12. 20.* Professor SLOCUM.

**9, 10, 11. *Differential Equations.***

Three hours. Through the year. Elective for students who have passed in 6. First and Second Terms required of candidates for the degree of Bachelor of Science in Electrical Engineering. *Tu., Th., Fri., at 3.20.* Professor MANNING.

**12. *Determinants and Theory of Equations.***

Three hours. Second Term. Elective for students who have passed in 3 or 16. Professor MANNING.

[13. *Modern Methods of Analytic Geometry.*]

Three hours. Third Term. Elective for students who have passed in 4. Not offered in 1905-06. Professor MANNING.

14. *Solid Analytic Geometry.*

Three hours. Third Term. Elective for students who have passed in 4. Professor MANNING.

15. *Spherical Trigonometry.*

One hour. First Term. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. Elective for students who have passed in 2 and who have not had Spherical Trigonometry. *Mon., Th., at 9.20. Mr. CURRIER.*

16. *Algebra.*

One hour. First Term. Two hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Arts or Bachelor of Philosophy who presented Solid Geometry and Plane Trigonometry for admission. *Mon., Th., at 9.20. Professor SLOCUM and Mr. CURRIER.*

17. *Algebra.*

Six hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. *Mon., Tu., Wed., Th., Fri., Sat.; 1st div. at 8; 2nd div. at 9.20; 3d div. at 10.20. Professor SLOCUM and Mr. CURRIER.*

18. *Trigonometry, Plane and Spherical.*

Six hours. Second Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. *Mon., Tu., Wed., Th., Fri., Sat.; 1st div. at 8; 2d div. at 9.20; 3d div. at 10.20. Professor SLOCUM and Mr. CURRIER.*

19. *Analytic Geometry.*

Six hours. Third Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. *Mon., Tu., Wed., Th., Fri., Sat.; 1st div. at 8; 2d div. at 9.20; 3d div. at 10.20. Professors DAVIS and SLOCUM, Mr. CURRIER.*

20. *Differential Calculus.*

Five hours. First Term. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. *Tu., Wed., Th., Fri., Sat., at 8. Professors DAVIS and SLOCUM.*

**21. *Integral Calculus.***

Three hours. Second and Third Terms. Required of candidates for the degree of Bachelor of Science in Civil Engineering, Mechanical Engineering, or Electrical Engineering. *Tu., Wed., Fri., at 8.* Professor DAVIS and Mr. CURRIER.

[**22. *Theory of Functions.***]

Three hours. Through the year. Elective for Graduates and approved Seniors. Not offered in 1905-06. Professor MANNING.

**23. *Differential Equations, advanced course.***

Three hours. Through the year. Elective for Graduates who have passed in 22. Professor MANNING.

[**24. *Advanced Algebra.***]

Three hours. Through the year. Elective for Graduates and for approved Seniors. Not offered in 1905-06. Professor MANNING.

[**25. *General Theory of Curves and Surfaces.***]

Three hours. Through the year. Elective for Graduates and approved Seniors. Not offered in 1905-06. Professor MANNING.

**26. *Quaternions and allied subjects.***

Three hours. Through the year. Elective for Graduates and for approved Seniors. Professor MANNING.

NOTE: Two or three of the courses 22-26 are offered each year according to the requirements of the students. For those who have taken them all, other courses can usually be arranged.

## XVI. MECHANICAL ENGINEERING.

Professor KENERSON, Messrs. PHETTEPLACE, APPLETON, and H. D. CADY.

*All courses in this department are required of candidates for the degree of Bachelor of Science in Mechanical Engineering. Though courses 1 to 7 are all open to Sophomores, Juniors, and Seniors, no more than two of them may be counted towards the degree of Bachelor of Arts or Bachelor of Philosophy.*

*A thesis is required before graduation of all candidates for the degree of Bachelor of Science in Mechanical Engineering. It may be based on extended independent study, on original experiments by the student, or on an original design of some complicated machine. In any case it must exhibit satisfactory ability in the student as an engineer.*

### *1, 2, 3. Wood-work.*

Three hours in any term. Seven hours of attendance. Elective for Sophomores, Juniors, and Seniors, who have taken a course in drawing. *Tu., 2.20 to 5.20; Fri., 2.20 to 6.20. Mr. CADY.*

Exercises in carpentry, wood-turning, and pattern-making.

### *4, 5, 6, 7. Metal-work.*

Three hours in any term. Seven hours of attendance. Elective for Sophomores, Juniors, and Seniors, who have taken a course in drawing. *Wed. 2.20 to 5.20; Fri. 2.20 to 6.20. Mr. CADY.*

Exercises in chipping and filing, use of machine tools, forging and hardening tools, etc.

### *8, 9, 10, 11. Kinematics.*

Three hours. Third, First, Second, and Third Terms. Elective for students who have passed in Drawing 7. *Tu., at 12.20; Mon., Th. 2.20 to 5.20. Mr. PHETTEPLACE.*

Velocity ratios, rolling curves, cams, gearing, linkwork, belting, trains of mechanism and aggregate combinations; machine tools and the application of the foregoing principles to produce the desired relative motions of parts in such machines. Recitations, drawing, and the solution of problems. Three hours of drawing are considered the equivalent of one hour of recitation.

### *12, 13, 14, 15. Machine Design.*

Three hours. Six hours of attendance. First, Second, Third, and Third Terms. Elective for students who have passed in 8, 9, 10, 11 and Mechanics 1. *Mon., Th., 10.20 to 1.20. Mr. PHETTEPLACE.*

Principles of mechanics and strength of materials applied to the design of representative types of boilers, engines, and various mechanisms. Solution of problems illustrating the method of designing bolts and nuts, keys, journals and bearings, fly-wheels, valve gears, etc. Lectures, calculation, and drawing.

### *16, 17, 18. Thermodynamics.*

Three hours. First, Second, and Third Terms. Elective for students who have passed in Physics 1, 2, 3 and Mathematics 5, 6, 7 or 20, 21. *Wed., Fri., Sat., 11.20 to 1.20. Professor KENERSON.*

Principles of gases and vapors as applied to steam, gas, and other heat engines, air-compressor, refrigerating apparatus, etc. Discussion of the energy of fuel and the utilization of such energy for power purposes by means of various media. Laws of the relation of variations of pressure, temperature, and volume of such media. Design of proper cylinders for producing a desired amount of power. Principles of the injector and ejector.

### 19, 20, 21. Steam Engineering.

Three hours. First, Second, and Third Terms. Elective for students who have passed in or are taking 16, 17, 18. *Tu., at 9.20 and 2.20 to 4.20; Wed., Sat., at 9.20.* Professor KENERSON.

Practical applications of the principles of thermodynamics and mechanics to the production, transmission, utilization, and measurement of power. Valves and valve gears, and valve setting. Indicator practice and tests of various forms of steam engines, gas engines, etc. Standardization of auxiliary apparatus used in making the various tests. Boiler testing, flue gas and fuel analysis, etc. Largely a laboratory course.

### 22. Materials of Engineering.

Three hours. First and Second Terms. Elective for students who have passed in Mechanics 1. *Wed., Fri., at 10.20. 1st. div., Mon., 2.20 to 4.20; 2d div. Tu., 2.20 to 4.20; 3d div., Th., 2.20 to 4.20.* Professor KENERSON and Mr. APPLETON.

Study of the sources, manufacture, and properties of the important materials used in engineering. Laboratory tests to determine the behavior of materials when subjected to tensile, compressive, and torsional stresses. Mixing and testing of cements and mortars. Preparation and examination of sections for the microscopical study of the structure of metals and alloys.

### 23. Power Plant Engineering.

Three hours. First Term. Elective for students who have passed in 19, 20, 21. *Wed., Fri., 2.20 to 5.20.* Professor KENERSON.

Discussion of the relation and co-ordination of various parts of the complete power plant. Management and methods of determining efficiency. Selection of best equipment for solution of various engineering problems from manufacturers' catalogues and actual inspection. Lectures, recitations, tests, and tours of inspection.

### 24. Advanced Laboratory Course.

Three hours. Second Term. *Wed., Fri., 2.20 to 5.20.* Professor KENERSON.

## XVII. PHILOSOPHY.

President FAUNCE, Professors DELABARRE, EVERETT, JACOBS, and MEIKLEJOHN.

*Every candidate for the degree of Bachelor of Arts or Bachelor of Philosophy is required to take some three-hour course continuous through the year in this department. The courses in Education cannot be taken to satisfy this requirement.*

*1. Logic.*

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. *Mon., Th., Fri., at 9.20.* Professor MEIKLEJOHN.

Aims, methods and limitations of human thinking; a preparation for work in the sciences and in philosophy. First Term, general introduction and formal logic; Second Term, principles and methods of the natural sciences; Third Term, relations of science to philosophy; philosophical interpretation and criticism of the results of science.

*2. Psychology, introductory course.*

Three hours. Through the year. Elective for Juniors. *Wed., Fri., Sat., at 11.20.* Professor DELABARRE.

Main facts and laws of mental life, with particular attention to their arrangement in a scientific system, and to their philosophical bearing. The course furnishes a knowledge of mental law important for practical life, and serves also as a transition from the special sciences to philosophy.

*3. Psychology, advanced course.*

Three hours. Through the year. Elective for Seniors, and Graduates. Professor DELABARRE.

A seminary for the discussion of important and interesting questions in psychology, especially the problems of hypnotism and psychical research.

*4. Experimental Psychology, introductory laboratory course.*

Three hours. Six hours of attendance. Through the year. Elective for Juniors, Seniors, and Graduates who have taken or are taking 2. Although essentially a year course, it may, by special arrangement with the instructor, be taken for a shorter period. Professor DELABARRE.

Description of the main lines and results of experimental research; demonstrations by the instructor or the class; training in the use of apparatus and in careful scientific observation and measurement.

*5. Experimental Psychology, advanced and original laboratory work.*

One to six hours. Two to twelve hours of attendance. Through the year. Elective for students who have taken 4. This course may be taken for more than six hours by Graduates, with double the number of hours of attendance. Professor DELABARRE.

The problems investigated vary and the course may therefore be taken two or more years in succession. The aim is to make original contributions to scientific knowledge in psychology and to publish the results.

**6, 7, 8. *History of Philosophy.***

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Mon., Th., Fri., at 9.20.* Professor EVERETT.

First Term, Greek philosophy; Second Term, mediaeval and early modern philosophy; Third Term, recent and contemporary philosophy. The successive philosophical systems in their dialectical development and mutual relations; treatment not merely analytic and historical, but synthetic and constructive as well.

**9, 10. *Theoretical Ethics.***

Three hours. First and Second Terms. Elective for Seniors and Graduates. *Tu., Wed., Sat., at 9.20.* Professor EVERETT.

Intended to aid in mastering the fundamental problems of life and character. First Term, a discussion of the nature and relation of ethics and an outline of the history of the chief ethical systems; Second Term, a critical study of the fundamental concepts of ethics with the aim of constructing a tenable theory of conduct.

**11. *Practical Ethics.***

Three hours. Third Term. Elective for Juniors. *Tu., Wed., Sat., at 9.20.* President FAUNCE.

Intended to apply ethical theory to the life of the individual, the family and the state. Discussion of current problems, personal, industrial, and social, from the ethical standpoint.

**12. *Philosophy of Religion.***

Three hours. Third Term. Elective for Seniors and Graduates. *Wed., Fri., Sat., at 11.20.* Professor EVERETT.

An investigation of the ultimate grounds of religious belief. Intended for students who have had previous philosophical training.

**13, 14, 15. *Philosophical Seminary.***

Three hours. Through the year. Elective for Graduates. Professor EVERETT.

Lectures, written reports, and discussions on the more difficult problems of philosophy. The subject for 1905-06 will be announced at the opening of the academic year.

**16. *Kantian and Post-Kantian Philosophy.***

Three hours. Through the year. Elective for Seniors who have taken 6, 7, 8, and for Graduates. Professor MEIKLEJOHN.

Kant's *Critique of Pure Reason* studied as the source of German Rationalism; the same line of thought traced in the *Critique of Practical Reason*, and in the works of Fichte, Schelling, and Hegel.

**EDUCATION.**

Professor JACOBS.

**1. *History of Education.***

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Fri., at 12.20.*

Education among the Greeks and Romans; rise and constitution of Universities; Erasmus and the Humanists; Comenius and the Realists; Rousseau and the Naturalists; development of educational psychology by Pestalozzi, Froebel, Herbart. The history of education considered from the point of view of the history of civilization.

**2. *Critical Study of Modern Education.***

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Fri., at 12.20.*

Present theories as growing out of past theories; effectiveness of present American systems compared with that of past systems and of present foreign systems; influences of education upon the state and society; current experiments; problems which an adequate theory of education must solve.

**3. *Fundamental Principles of Education.***

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Fri., at 12.20.*

The meaning and aim of education; the function of education as a social institution; the sequence and coördination of studies; the principles of instruction; apperception; the steps in method; the use of the type in instruction; the training of the will; the principles of moral education.

Courses 1, 2, and 3 treat of education in its relation to the individual, and to the social and political whole, and their interest is therefore not limited to those who intend to teach. At the same time they form an introduction to the courses which follow. Those who intend to teach are advised to elect these courses during the Junior year.

**4. *Psychology of Education.***

Three hours. First Term. Elective for Seniors and Graduates who have taken 1, 2, or 3, or who are taking 1. *Mon., Tu., Th., at 11.20.*

Theory and process of mental development, with special emphasis upon the period of adolescence. Psychology of method, and of the various studies and disciplines. Directions in which student and teacher may utilize a knowledge of the more fundamental activities of mind. An extended acquaintance with psychology, while useful, is not necessary to the profitable pursuit of the course.

### 5. *Hygiene of Education.*

Three hours. Second Term. Elective for Seniors and Graduates who have taken 1, 2, or 3, or who are taking 2. *Mon., Tu., Th., at 11.20.*

The hygiene of growth; physical culture and athletics; play and fatigue; sight and hearing; school diseases; school architecture, warming, ventilating, and lighting; sanitation; school furniture; school programs.

### 6. *Practical Introduction to Teaching.*

Three hours. Third Term. Elective for Seniors and Graduates who have taken or are taking other courses in Education. *Mon., Tu., Th., at 11.20.*

The method of the recitation. Management and discipline of classes. Observation of good teaching. Practical applications of method.

*Teachers' Certificates.* Courses 1-6 cover the requirements for certificates of the First Grade in all states except those where practice teaching or experience is demanded. In Rhode Island the holding of a certificate is required of all teachers in schools supported in whole or in part by public money. Certificates of the First Grade are granted without examination to those who have completed these courses and hold a college degree. Due credit is also given for separate courses.

### 7, 8, 9. *Methods in Secondary School Studies and the Organization, Equipment, and Management of Secondary Schools.*

Three hours. Through the year. Two hours of class-room attendance. Required of student-teachers. Elective for Graduates and experienced teachers. *Wed., 3.20 to 5.20.* Each term may be elected separately.

Importance and meaning of secondary school studies; their organization into a curriculum; method as applied to each subject; the resources at the command of the teacher. The following studies receive special attention: First Term, Latin and modern languages; Second Term, History and English; Third Term, Science and mathematics. For explanation of the work of student-teachers, see page 159 of the 1904-05 Catalogue.

### 10, 11, 12. *Training in Practical Teaching—Secondary Schools.*

Three hours. Through the year. Elective for Graduates who have completed the elementary courses in Education. *Fri., at 3.20.*

Practice teaching in the Providence high schools under experienced teachers. Observation, reports, conferences. Designed to train those who wish to become instructors in colleges, teachers or principals in secondary schools, or superintendents of schools. For explanation of the work of student-teachers, see page 159 of the 1904-05 Catalogue.

The practice teaching is done under the following supervising teachers: Charles E. Dennis, Ph. D., *Latin*; Victor Frazee, A. M., *History*; Charles E. Tilley, A. M., *Physics and Chemistry*; Grace H. Parker, A. B., *Natural Science*; Horace E. Jacobs, A. M., *Mathematics and Latin*; Florence J. Whiting, A. M., *Physics and Chemistry*; Sidney A. Sherman, Ph. D., *Mathematics and Civics*.

**13, 14, 15. *Training in Practical Teaching—Grammar Grades.***

Three hours. Through the year. Elective for Graduates who have completed the elementary courses in Education and who are pursuing courses 16, 17, 18. *Mon., at 3.20; Fri., at 4.20.*

Practice teaching in the Providence grammar schools under experienced teachers. Observation, reports, conferences. Designed especially to train those who wish to become grade teachers, assistant principals, principals of grammar schools, or superintendents; but also furnishes practical training for those who wish to teach in secondary schools. This course is open also to a limited number of Seniors by special permission. For explanation of the work of student teachers, see page 159 of the 1904-05 Catalogue.

The practice teaching is done under the following supervising teachers: Isaac O. Winslow, A. M., *Grammar Grades*; Mary Williams, *Eighth Grade*; and the Grammar Critics of the Providence public schools.

**16, 17, 18. *Seminary in Educational Problems.***

Three hours. Two hours of class-room attendance. Required of student teachers. Elective for Graduates and experienced teachers. *Sat., 10.20 to 12.20.* Each term may be elected separately.

Reviews and discussions of recent publications; reports on special studies undertaken by members. The subjects vary from year to year. Those for 1905-06 are: First Term, Psychologic foundations of education. Second Term, Moral education. Third Term, an intensive study of some period in the history of education.

## XVIII. PHYSICS.

Professors BARUS, PALMER, and WATSON.

**1, 2, 3. *Elementary Physics.***

Three hours. Through the year. Elective for Undergraduates who have taken Mathematics 1, 2, 3, or their equivalent. *Mon., Wed., Th., at 10.20.* Professor BARUS.

First Term, kinematics and dynamics; Second Term, molecular physics; Third Term, electricity. Lectures, illustrated by experiments and the lantern. Weekly written exercises corrected in detail by the instructors. Designed for those who have had little previous training in physics.

**4, 5, 6. *Elementary Physics, continued.***

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors who have passed in 1, 2, 3. *Tu., Fri., Sat., at 10.20.* Professor BARUS.

First Term, optics; Second term, acoustics; Third term, heat. Method as in 1, 2, 3.

**NOTE:** Graduates attending courses 1, 2, 3, 4, 5, 6, are held responsible for all the demonstrations, or for the full equivalent of either Watson's or Daniel's *Principles of General Physics*.

### 7. *Physical Measurements.*

Three hours. Six hours in the laboratory. Through the year. Elective for students who have passed in 1, 2, 3 or 4, 5, 6. *Mon., at 12.20.* Professor PALMER.

Elementary theory and practice of physical manipulation. Reports of experiments and solution of problems.

**NOTE:** Of the two following courses—8, 9, 10 and 11, 12, 13—only one will be offered in any given year. In determining which shall be offered, the preference of applicants will be considered.

### 8, 9, 10. *Mathematical Treatment of Dynamical Problems.*

Three hours. Through the year. Elective for Seniors and Graduates who have passed in 7 and Mathematics 4. Professor PALMER.

Lectures. First Term, discussion of the general principles of dynamics and the development of the general equations of motion; Second and Third Terms, application of these principles to special problems in thermodynamics and hydrodynamics.

### 11, 12, 13. *Mathematical Theory of Electricity and Magnetism.*

Three hours. Through the year. Elective for Graduates and Seniors who have passed in 7 and Mathematics 4. Professor PALMER.

Lectures. Includes a discussion of the more important problems of electrical science.

### 14, 15, 16. *Advanced Laboratory Course.*

Three or six hours. Six or twelve hours of attendance. Through the year. Elective for students who have passed in 7. Professors BARUS, PALMER, and WATSON.

For those who are already familiar with the use of physical apparatus and are capable of carrying on investigations more or less independently. Special problems and reference to original sources for methods of solution.

**NOTE:** Of the two following courses—17, 18, 19 and 20, 21, 22—only one will be offered in any given year. In determining which shall be offered, the preference of applicants will be considered.

### 17, 18, 19. *Applied Harmonic Analysis.*

Three hours. Through the year. Elective for Seniors and Graduates who have passed in 1, 2, 3 and Mathematics 7, 9. Professor BARUS.

Importance of Fourier's method shown by examples drawn from the analytical theory of heat, from elastics, alternating electricity, and elsewhere; treatment by the aid of spherical harmonics, Bessel functions, and Lamé functions.

**20, 21, 22. Physics, advanced course.**

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates, who have passed in Mathematics 5, 6, 7. Tu., Fri., Sat., at 10.20. Professor BARUS.

Lectures on dynamics, potential elastics, hydrostatics, hydro-dynamics, viscosity, capillarity, electrostatics, magnetism, electro-magnetism, thermo-electrics, induction, Fresnel's optics, the electro-magnetic theory of light, thermal analytics, and thermo-dynamics. Completed in two years. Alternating, if desirable, with 17, 18, 19.

**23. Precision Measurements in Photometry, Electricity, Magnetism, and Electro-Chemistry.**

Three hours. Six hours in the laboratory. Through the year. Elective for students who have passed in 7 and Mathematics 6. Professor PALMER.

NOTE: Courses 24-27 are courses in original research intended for qualified graduate students. They will be offered according to the needs of applicants. They occupy more or less time a week, according to the requirements of the students. Other courses in original research are offered to suit the special needs of advanced students.

**24. Behavior of Matter through Long Ranges of Temperature.**

Investigation of accurate methods and data in absolute pyrometry; determination of the high temperature constant of non-volatile bodies with a view to the elucidation of fundamental questions in the physics of the earth's crust. Professor BARUS.

**25. Behavior of Matter through Long Ranges of High Pressure.**

Thermodynamics of the change of state from solid to liquid, due either to fusion or to solution, with especial reference to the continuity of solid and liquid, and to the location of the lower critical temperature. Professor BARUS.

**26. Absolute Viscosity of Solids as Compared with Liquids and Gases.**

Investigation of absolute data for the viscosity of solids. Professor BARUS.

**27. Physical Properties of the Iron Carburets.**

A consideration of the physical properties of iron, steel, and cast iron with reference to metallurgical and electro-technical problems. Professor BARUS.

NOTE: Candidates for the degree of Master of Arts with a major in physics will be held responsible for at least one of the advanced courses in theoretical physics. The requirements for non-resident students taking their minor in physics are quite as advanced as for students in residence taking their major in physics. The department is able to offer every reasonable facility both for research work and for the study of the higher problems in physics; it is not able to offer much encouragement to those wishing to take degrees *in absentia*.

## ELECTRICAL ENGINEERING.

Professor WATSON.

### 1, 2, 3. General Course.

Three hours. Through the year. Elective for students who have passed in Physics 3. First Term: *Mon., Th., Fri.*, at 9.20. Second and Third Terms, *Mon., Th., at 9.20*.

First Term, definite instruction in methods of generating and utilizing electric currents. Second Term, technical study of theory and working of direct current dynamo-electric machinery. Third Term, practical methods of operating and testing various sizes and types of standard dynamos and accessory apparatus; lectures on alternating current machinery.

### 4, 5, 6. Alternating Currents.

Three hours. Two hours of recitation and two hours of laboratory work. Through the year. Elective for students who have passed in 3 and who have taken or are taking Mathematics 9. *Mon., Th., Fri., at 11.20*.

### 7, 8, 9. Industrial Electricity.

Three hours. Through the year. Elective for candidates for the degree of Bachelor of Science in Electrical Engineering. May be taken with 1, 2, 3. First Term, *Tu., Wed., Sat.*, at 9.20; Second and Third Terms, *Tu., Fri., Sat.*, at 9.20.

First Term, telephone and telegraph engineering. Second Term, history of electrical engineering. Third Term, design and calculation of direct current machinery, including actual drawing of electrical machinery in connection with Mechanical Engineering 11.

### 10. Electric Railway Engineering.

Three hours. First Term. Elective for students who have passed in 1, 2, 3. *Mon., Th., Fri., at 10.20*.

### 11. Design and Calculation of Alternating Current Machinery.

Three hours. Second Term. Elective for students who have passed in 1, 2, 3. *Mon., Th., Fri., at 10.20*.

*12. Central Station Design, Equipment, and Systems of Distribution.*

Three hours. Second Term. Elective for students who have passed in 1, 2, 3. *Tu., Wed., Sat., at 10.20.*

*13. Specific Engineering Problems.*

Three hours. Third Term. *Mon., Th., Fri., at 10.20.*

Reading and discussion. Seminary method.

## XIX. POLITICAL ECONOMY.

Professor GARDNER and Dr. WILLETT.

*The courses in this department other than 1 are open only to those students who have passed in Political Science 1, Social Science 1, and Political Economy 1, which together constitute a single course introductory to the advanced work of the departments of Social and Political Science and Political Economy.*

*1. Political Economy, elementary.*

Three hours. Third Term. Required in the Sophomore, Junior, or Senior year of all candidates for the degree of Bachelor of Arts; elective for all other Sophomores, Juniors, and Seniors who have passed in Social Science 1 and Political Science 1. *1st div. Tu., Fri., Sat., at 10.20; 2d div. Mon., Tu., Th., at 11.20.* Professor GARDNER.

*2.\* General Economics.*

Three hours. Through the year. Elective for Juniors and Seniors; *Tu., Fri., Sat., at 10.20.* Professor GARDNER, First and Second Terms. Dr. WILLETT, Third Term.

The development and significance of the more important elements in the existing industrial organization; the principles governing the production, exchange, distribution, and consumption of wealth; the more important practical problems of economic life.

*3. Money and Banking.*

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates. *Wed., Fri., Sat., at 11.20.* Professor GARDNER.

Principles of money and banking; recent monetary and banking history, particularly of the United States; monetary and banking systems of leading industrial nations; present monetary and banking problems.

[4. *Public Finance.*]

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. To be offered in 1906-07. Professor GARDNER.

First Term, general principles of public finance; revenues and expenditures of leading industrial nations. Second Term, financial history of the United States. Third Term, local finance; revenues, expenditures, and financial systems of American states and cities.

5. *History and Present Tendencies of Political Economy.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1906-07. *Mon., Tu., Th., at 11.20.* Dr. WILLETT.

Early economic theories; a critical examination of the theories of the early schools of economists, especially the physiocrats and the early English school, with particular attention to the relation between economic thought and economic life and practice. Recent economic theory; a study of the tendencies of the historical school, the Austrian school, and recent English and American writers. The growth of the principle of monopoly, its influence on the production and distribution of wealth and on the economic well being of society.

[6. *The Labor Movement.*]

Three hours. First Term. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. To be offered in 1906-07. Dr. WILLETT.

History and analysis of the trade union movement, growth of collective bargaining, labor problems in the United States.

[7. *Socialism.*]

Three hours. Second Term. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. To be offered in 1906-07. Dr. WILLETT.

A brief review of the historically important socialistic schemes; mainly a study of the modern scientific socialism of Karl Marx and of the resulting socialistic movements.

8. *Industrial Corporations.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. Not to be offered in 1906-07. *Wed., Fri., Sat., at 11.20.* Professor GARDNER.

Development of the corporate form of business organization, its effects, the problems to which it gives rise. Special emphasis on the recent movements toward combination and toward control of corporations, particularly quasi-public corporations, by the State.

[9. *The Tariff.*]

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. To be offered in 1906-07. Dr. WILLETT.

The arguments for free trade and protection in relation to the principles of international trade; the history of tariff legislation and its effects in the United States.

10, 11, 12. *Industrial History.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. Each term may be elected independently. Tu., Th., Sat., at 12.20. Professor GARDNER.

First Term, the chief stages in the development of the industrial life of England, with special emphasis on the origin and development of the existing form of industrial organization. Second Term, the more important aspects of the industrial development of the colonies and the United States to 1860. Third Term, special emphasis on the growth, organization, and geographical distribution of the main branches of industry, and on the relation of the industrial life of the United States to that of the world at large.

[13. *Insurance.*]

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates. Not offered in 1905-06. To be offered in 1906-07. Dr. WILLETT.

Theory of risk and insurance. Organization of insurance companies. General principles of the technic of insurance. Investment of insurance funds. Preventive activities of insurance companies. Effect of the institution of insurance on amount of loss. Historical development and present condition of the insurance business. Economic and social effects of insurance. Attitude of the State towards insurance.

20, 21, 22. *Investigation of Special Topics.*

Three hours. Six hours of attendance. Through the year. Elective for approved Juniors, Seniors, and Graduates. Each term may be elected independently. Professor GARDNER and Dr. WILLETT.

Intended to train the student in methods of gathering, handling, and presenting data in the study of economic life and problems. Laboratory methods.

It is probable that the work in 20, 21, 22, and in the corresponding courses in the department of Social and Political Science will be directed to the study of some subject of common interest to the two departments, possibly to the study of economic, political, and social conditions in Rhode Island, and that the time will be divided between laboratory work and seminary meetings with the professors of the two departments for the presentation and discussion of results.

## XX. ROMAN LITERATURE AND HISTORY.

Professors HARKNESS and GREENE.

While grammatical study and literary criticism receive attention in the courses of the Freshman year, the special aim is to enable the student to acquire facility in reading and to instruct him in the use of the Latin texts as a means of acquiring a knowledge of Roman history.

In the Sophomore courses, the literary side of the study is made prominent. A part of the time is occupied with a critical study of the poems; a part is devoted to rapid reading with a view to comprehending the spirit of the authors. Lectures are given by the instructor, and literary topics are assigned to the class for special study.

The advanced courses open to Juniors and Seniors relate to the development and history of Roman literature. Poetry and prose are discussed in alternate years. The aim of these courses is to give a connected and comprehensive view of Roman literature. Lectures are given on the lives and writings of the authors, and characteristic selections are read. Topics in literary history and criticism are assigned to members of the class for special study and investigation.

### 1. *Livy.*

Three hours. First Term. Elective for students who presented elementary and advanced Latin for admission. 1st div., Wed., Fri., Sat., at 11.20; 2d div., Tu., Th., Sat., at 12.20; 3d div., Mon., Tu., Th., at 2.20. Professors HARKNESS and GREENE.

### 2. *Cicero's Letters.*

Three hours. Second Term. Elective for students who presented elementary and advanced Latin for admission. 1st div., Wed., Fri., Sat., at 11.20; 2d div., Tu., Th., Sat., at 12.20; 3d div., Mon., Tu., Th., at 2.20. Professors HARKNESS and GREENE.

### 3. *Tacitus's Germania and Agricola.*

Three hours. Third Term. Elective for students who presented elementary and advanced Latin for admission. 1st div., Wed., Fri., Sat., at 11.20; 2d div., Tu., Th., Sat., at 12.20; 3d div., Mon., Tu., Th., at 2.20. Professors HARKNESS and GREENE.

### 4. *Horace's Odes and Epodes.*

Three hours. First Term. Elective for Sophomores. Mon., Wed., Fri., at 12.20. Professor HARKNESS.

### 5. *Catullus, Tibullus, and Propertius.*

Three hours. Second Term. Elective for Sophomores. Mon., Wed., Fri., at 12.20. Professor GREENE.

*6. Satires of Horace.*

Three hours. Third Term. Elective for Sophomores. *Mon., Wed., Fri., at 12.20.* Professor HARKNESS.

*7. Origin of Latin Poetry and Development of the Drama.*

Three hours. First Term. Elective for Juniors and Seniors. *Tu., Fri. Sat., at 10.20.* Professor HARKNESS.

Readings from Plautus.

*8. Poetry of the Republic, continued, and Poetry of the Augustan Age.*

Three hours. Second Term. Elective for Juniors and Seniors. *Tu., Fri., Sat., at 10.20.* Professor GREENE.

Readings from Lucretius.

*9. Poetry of the Silver Age.*

Three hours. Third Term. Elective for Juniors and Seniors. *Tu., Fri., Sat., at 10.20.* Professor HARKNESS.

Readings from Juvenal and Martial.

[*10. Prose of the Early Republican Period.*]

Three hours. First Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor HARKNESS.

Lectures on the development of oratory; readings from specimens of early Latin, from Cicero's *Brutus*, and from Quintilian.

[*11. Prose of the Later Republican Period.*]

Three hours. Second Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor GREENE.

Readings from Cicero.

[*12. Prose of the Silver Age.*]

Three hours. Third Term. Elective for Juniors and Seniors. Not offered in 1905-06. Professor HARKNESS.

Readings from the *Annals* of Tacitus.

*13, 14, 15. Petronius, Pliny the Younger, Martial.*

One hour. Through the year. Elective for Juniors, Seniors, and Graduates. *Fri., at 2.20.* Professor HARKNESS.

[*16, 17, 18. Epigraphy.*]

Two hours. Through the year. Elective for Graduates and qualified Undergraduates. Not offered in 1905-06. Professor HARKNESS.

[*19, 20, 21. Palaeography and Textual Criticism.*]

Two hours. Through the year. Elective for Graduates and qualified Undergraduates. Not offered in 1905-06. Professor HARKNESS.

**22, 23, 24. Latin Composition.**

One hour. Through the year. Elective for Sophomores, Juniors, and Seniors. *Mon., at 3.20.* Professor GREENE.

**25, 26, 27. Seminary in Latin.**

Two hours. Through the year. Elective for Graduates. Professors HARKNESS and GREENE.

Poetry of the Empire. A study of the history of poetic style. Reading from Gudeman's *Latin Literature of the Empire*, volume II.

**[28, 29. Roman Life.]**

Three hours. Second and Third Terms. Elective for Freshmen and Sophomores. Not offered in 1905-06. Professor GREENE.

The private and public life of the Romans. Based on the monuments and literature. Intended to give a comprehensive view of the general civilization of Rome. Lectures, supplemented by reading and reports. No knowledge of Greek or Latin is required. This course is a continuation of Greek 33. The three terms together constitute the course called History of Greek and Roman Life and Institutions.

**30. Roman Literature.**

Three hours. Second Term. Elective for Freshmen and Sophomores. *Mon., Tu., Th., at 11.20.* Professor HARKNESS.

A brief history of Roman literature. Some of the most important and characteristic works are studied in English translations. No knowledge of Latin is required. This course follows Greek 34 and is continued in the third term by Greek 35, a course in Later Greek and Roman Literature.

**31, 32, 33. History of the Roman Empire.**

Three hours. Through the year. Elective for Sophomores, Juniors, and Seniors. Each term may be elected independently. *Wed., Fri., Sat., at 11.20.* Professor GREENE.

First Term, The Early Empire. Second Term, The Age of the Antonines. Third Term, The Age of Constantine.

The Harkness Classical Club meets once a month for the reading of papers and for discussion. Arrangements also are made from time to time for public addresses. The membership is open to Graduates and Undergraduates.

## **XXI. ROMANCE LANGUAGES AND LITERATURES.**

Professors LANGDON, JOHNSON, and MORSE, Mr. HUNKINS.

**1. Elementary French.**

Three hours. Through the year. Required of all students who did not present French for admission. *1st div. Tu., Wed., Sat., at 9.20; 2d and 3d div. Mon., Tu., Th., at 2.20.* Professor MORSE, Mr. HUNKINS.

Grammar, composition, dictation, translation of selections from modern authors into idiomatic English. The equivalent of the French required for admission.

**2, 3, 4. French Language, intermediate course.**

Three hours. Through the year. Required of all students who presented elementary French for admission. Elective for students who have passed in 1. 1st, 3d, and 5th div. *Wed., Fri., Sat., at 11.20; 2d and 4th div. Tu., Th., Fri., at 3.20.* Professors JOHNSON and MORSE, Mr. HUNKINS.

Syntax, translation of modern authors, written and oral translation into French of exercises based upon the texts read, dictation. Intended to give students a large working vocabulary.

**5, 6, 7. French Language and Literature.**

Three hours. Through the year. Elective for students who presented advanced French for admission, or who received only a pass-mark in 2, 3, 4. *Mon., Tu., Th., at 11.20.* Mr. HUNKINS.

An introduction to the best French literature of the nineteenth century; includes some study of the language.

**[8, 9, 10. French Literature from 1800 to 1850.]**

Three hours. Through the year. Elective for students who have passed with credit in 2, 3, 4, or have passed in 5, 6, 7. Not offered in 1905-06. Professor JOHNSON.

**11, 12, 13. French Literature since 1850.**

Three hours. Through the year. Elective for students who have passed with credit in 2, 3, 4, or have passed in 5, 6, 7. *Mon., Tu., Th., at 11.20.* Professor JOHNSON.

Flaubert, Les Goncourt, Zola, Daudet, Renan, Augier, Dumas fils, Rostand, and others.

**[14, 15, 16. Practice in Writing and Speaking French.]**

Three hours. Through the year. Elective for students who have passed with credit in 2, 3, 4 or 5, 6, 7. Not offered in 1905-06. Professor JOHNSON.

Intended especially for those preparing to teach. A large amount of composition, abstracts (in French) of assigned reading, dictation, conversation, oral translation into French of an English novel, abstracts of French read in class by the instructor.

**[17, 18, 19. Old French.]**

Three hours. Through the year. Elective for Seniors and Graduates. Not offered in 1905-06. Professor MORSE.

The elements of Romance philology and an introduction to the literature of the Middle Ages in France.

[20, 21, 22. *French Literature from 1636 to 1800.*]

Three hours. Through the year. Elective for students who have passed in 10, 13, or 16. Not offered in 1905-06. Professor JOHNSON.

Corneille, Pascal, Madame de La Fayette, Molière, Racine, La Fontaine, Boileau, Bossuet, Madame de Sévigné, Saint-Simon, Marivaux, Le Sage, Voltaire, Beaumarchais, and others.

23, 24, 25. *The French Drama.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates who have passed with credit in French 2, 3, 4. *Tu., Fri., Sat., at 10.20.* Professor LANGDON.

The drama from Corneille to Rostand, with special study of its classical and romantic sources and influences.

26, 27, 28. *Modern Italian.*

Three hours. Through the year. Elective for Juniors and Seniors, and for Sophomores not electing more than one other modern foreign language. *Tu., Fri., Sat., at 10.20.* Professor MORSE.

Grammar, composition, conversation, and rapid translation of modern authors.

[29, 30, 31. *Italian Literature from 1321 to 1800.*]

Three hours. Through the year. Elective for students who have passed in 26, 27, 28. Not offered in 1905-06. To be offered in 1906-07. Professor MORSE.

Selections from Petrarch, Sacchetti, Tasso, Macchiavelli, Goldoni, with a brief survey of the life and history of the times.

32, 33, 34. *Dante.*

Three hours. Through the year. Elective for students who have had 26, 27, 28, or its equivalent. *Mon., Wed., Th., at 10.20.* Professor LANGDON.

The *Divina Commedia* read in the original.

35, 36, 37. *Dante in English.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Mon., Tu. Th., at 11.20.* Professor LANGDON.

A study of the whole of the *Divina Commedia* in English in the light of modern thought and in connection with other great world-poems, *Job*, the *Iliad-Odyssey*, the *Aeneid*, *Hamlet*, *Paradise Lost*, *Faust*, and *The Ring and the Book*. An introduction to a study of comparative literature by means of the best available translations.

38, 39, 40. *Modern Spanish.*

Three hours. Through the year. Elective for Juniors, and for Sophomores not electing more than one other modern foreign language. *Tu., Fri., Sat., at 10.20.* Professor JOHNSON.

Grammar, conversation, composition, writing from dictation, and rapid reading.

*41, 42, 43. Spanish Literature of the Nineteenth Century.*

Three hours. Through the year. Elective for students who have passed in 38, 39, 40. *Mon., Wed., Th., at 10.20.* Professor JOHNSON.

Gil y Zárate, Moratin, Núñez de Arce, Tamayo, Echegaray, Alarcón, Valera, Galdós, Valdés, and Pardo Bazán.

[*44, 45, 46. Spanish Classics.*]

Three hours. Through the year. Elective for students who have passed in 38, 39, 40. Not offered in 1905-06. Professor JOHNSON.

Cervantes, Lope, Calderón, Téllez, and others.

## XXII. SOCIAL AND POLITICAL SCIENCE.

Professors WILSON and DEALEY.

*The courses in this department other than 1 are open only to those students who have passed in Political Science 1 (first term), Social Science 1 (second term), and Political Economy 1 (third term), which together constitutes a single course introductory to the advanced work of the departments of Social and Political Science and Political Economy.*

### POLITICAL SCIENCE.

#### 1. Elementary.

Three hours. First Term. Required in the Sophomore, Junior, or Senior year of all candidates for the degree of Bachelor of Arts; elective for all other Sophomores, Juniors, and Seniors. *1st div. Tu., Fri., Sat., at 10.20; 2d div. Mon., Tu., Th., at 11.20.* Professor WILSON.

#### 2. International Law, Diplomacy, and the Relations of States.

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Fri., at 12.20.* Professor WILSON.

#### 3, 4. American Government.

Three hours. First and Second Terms. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Th., at 10.20.* Professor DEALEY.

First term, constitution, organization, powers, and methods of our national system of government. Second Term, organization and functions of the states and cities of the United States.

NOTE: Course 4 is supplemented by the course in Municipal Improvements offered by the department of Civil Engineering.

### 5. Comparative Study of Constitutions.

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. *Mon., Wed., Th., at 10.20.* Professor DEALEY.

With special reference to the constitutions of Germany, France, Great Britain, and Switzerland.

NOTE: Courses 6-15 are primarily for Graduates and may be elected by those Undergraduates only who are approved by the department. These courses are given according to the needs of qualified applicants.

### 6. The Latin-American Republics.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor DEALEY.

Their governments and social conditions.

### 7. Administration.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

Principles and national systems.

### 8. Administration, continued.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

Local and colonial.

### 9. Political Problems.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

With special reference to the political problems of the United States.

### 10. Political Parties.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

Development of political parties in the United States and Europe.

### 11. Constitutional Law.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor DEALEY.

Principles and development of constitutional law with special reference to the Constitution of the United States.

### 12. Roman Law.

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

The influence of Roman law on political institutions.

*13. The State.*

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor DEALEY.

Origin, forms, development, functions, and institutions of the state.

*14. Development of Political Theory.*

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor DEALEY.

The growth of important political ideas traced from Plato to the present time, with emphasis on the evolution of democracy.

*15. Current Political Theory and Practice.*

One hour. Through the year. Elective for Graduates. *Mon., at 4.* Professors WILSON and DEALEY.

*20, 21, 22. Investigation of Special Topics.*

Three hours. Six hours of attendance. Through the year. Elective for Graduates and for approved Juniors and Seniors. Professors WILSON and DEALEY and DR. WILLETT.

Intended to train the student in methods of gathering, handling, and presenting data in the study of social and political problems. Laboratory methods.

It is probable that the work in 20, 21, 22 and in the corresponding courses in Political Economy and Social Science will be directed to the study of some subject of common interest to the two departments, possibly to the study of social, political, and economic conditions in Rhode Island, and that the time will be divided between laboratory work and seminary meetings with the professors of the two departments for the presentation and discussion of results.

## SOCIAL SCIENCE.

*1. Elementary Course.*

Three hours. Second Term. Required in the Sophomore, Junior, or Senior year of all candidates for the degree of Bachelor of Arts; elective for all other Sophomores, Juniors, and Seniors. *1st div. Tu., Fri., Sat., at 10.20. 2d div. Mon., Tu., Th., at 11.20.* Political Science 1 a prerequisite. Professor DEALEY.

*2. Social Institutions, Conditions, and Problems.*

Three hours. Through the year. Elective for Juniors, Seniors, and Graduates. *Mon., Tu., Th., at 11.20.* Professor WILSON.

Historical development of domestic, religious, and political institutions. Study of such social problems as charity, crime, intemperance, marriage and divorce, etc.

### *3. Social Philosophy.*

Three hours. Third Term. Elective for Juniors, Seniors, and Graduates. *Wed., Fri., Sat., at 11.20.* Professor DEALEY.

Aims and ideals in social life; social well-being.

NOTE: Courses 4-7 are primarily for Graduates and may be elected by those Undergraduates only who are approved by the department. These courses are given according to the needs of qualified applicants.

### *4. Demography.*

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

Dispersion of races. Social study of race characteristics. Emigration, immigration, etc.

### *5. The Principles of Sociology.*

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor WILSON.

Nature of society. Social forces and environment.

### *6. Development of Social Theory.*

Three hours. Offered in either the First, Second, or Third Term, if applied for by Graduates. Professor DEALEY.

Traces important theories, ancient and modern, in regard to social conditions and development.

### *7. Current Social Theory and Practice.*

One hour. Through the year. Elective for Graduates. *Mon., at 5.* Professors WILSON and DEALEY.

## PHYSICAL TRAINING.

Mr. MARVEL.

From the close of the Thanksgiving recess to the end of the second term all first and second year students are required to attend gymnasium exercises three times a week as follows:

Freshmen. 1st div. *Tu., Fri., Sat., at 10.20;* 2d div. *Mon., Tu., Th., at 4.20.*

Sophomores. 1st div. *Mon., Wed., Th., at 10.20;* 2d div. *Tu., Th., Fri., at 3.20.*

A voluntary class for Juniors and Seniors will be held on *Mon., Tu., Th., Fri., at 5.20.*

# Table of Elective Courses Offered in 1905-06 Arranged by Terms.

\*Sr., Jr., So., Fr. indicate that the courses after which these abbreviations stand are open to Seniors, Juniors, Sophomores, or Freshmen, respectively.

## FIRST TERM

Art 1 Jr. Sr.	Comparative Anatomy	French 37 Jr. Sr.
" 4 Jr. Sr.	2 So. Jr. Sr.	Geology 6 Jr. Sr.
" 10 Fr. So. Jr. Sr.	Comparative Anatomy	" 9 Sr.
" 11 Jr. Sr.	3 Jr. Sr.	German 3 So. Jr. Sr.
Astronomy 1 Jr. Sr.	Comparative Anatomy	" 6 So. Jr. Sr.
" 4 Jr. Sr.	7 Jr. Sr.	" 7 So. Jr. Sr.
" 7 So. Jr. Sr.	Comparative Anatomy	" 8 So. Jr. Sr.
" 10 Sr.	8 Jr. Sr.	" 11 Jr. Sr.
Biblical Literature 1 Jr. Sr.	Comparative Anatomy	" 12 Jr. Sr.
Biblical Literature 2 Sr.	10 Jr. Sr.	" 17 Jr. Sr.
Biblical Literature 3 Sr.	Drawing 2 Fr. So. Jr. Sr.	Greek A Fr. So. Jr. Sr.
" " 6 Sr.	Drawing 4 So. Jr. Sr.	" 1 Fr. So. Jr. Sr.
" " 10 Jr. Sr.	" 7 So. Jr. Sr.	" 4 So.
" " 14 So. Jr. Sr.	Education 1 Jr. Sr.	" 8 Jr. Sr.
Biblical Literature 15 Jr. Sr.	" 4 Sr.	" 23 Sr.
Botany 1 Fr. So. Jr. Sr.	Electrical Engineering 1 Jr. Sr.	" 34 Fr. So.
Botany 2 So. Jr. Sr.	Electrical Engineering 4 Jr. Sr.	History 2 Jr. Sr.
Botany 6 Jr. Sr.	Electrical Engineering 7 Jr. Sr.	" 4 Jr. Sr.
Chemistry 1 Fr. So. Jr. Sr.	Electrical Engineering 10 Sr.	" 8 Jr. Sr.
Chemistry 4 So. Jr. Sr	English 2 So.	" 14 Sr.
" 7 Jr. Sr.	" 3 So. Jr. Sr.	" 19 Jr. Sr.
" 10 Jr. Sr.	" 4 Jr. Sr.	" 22 Sr.
" 18 Jr. Sr.	" 5 Jr. Sr.	Italian 26 So. Jr. Sr.
" 24 Jr. Sr.	" 7 So. Jr. Sr.	" 32 Jr. Sr.
" 27 Jr. Sr.	" 8 Sr.	" 35 Jr. Sr.
" 33 Sr.	" 9 Jr. Sr.	Latin 1 Fr. So. Jr. Sr.
" 36 Sr.	" 10 Jr. Sr.	" 4 So.
Civil Engineering 4 So. Jr. Sr.	" 11 So. Jr. Sr.	" 7 Jr. Sr.
Civil Engineering 10, 11 Jr. Sr.	" 13 Jr. Sr.	" 13 Jr. Sr.
Civil Engineering 23 Sr.	" 15 Jr. Sr.	" 22 So. Jr. Sr.
Civil Engineering 25 Sr.	" 16 Jr. Sr.	" 31 So. Jr. Sr.
Civil Engineering 26 Sr.	" 19 So. Jr. Sr.	Mathematics 4 So. Jr. Sr.
Comparative Anatomy 1 Fr. So. Jr. Sr.	" 20 So. Jr. Sr.	Mathematics 6 So. Jr. Sr.
	" 22 Jr. Sr.	" 9 Jr. Sr.
	" 23 Sr.	" 15 So. Jr. Sr.
French 2 So. Jr. Sr.	French 2 So. Jr. Sr.	Mathematics 26 Sr.
" 5 Fr. So. Jr. Sr.	" 11 So. Jr. Sr.	Mechanical Engineer- ing 1-7 So. Jr. Sr.
" 11 So. Jr. Sr	" 23 Jr. Sr.	Mechanical Engineer- ing 9 Jr. Sr.
		Mechanical Engineer- ing 12 Sr.

Mechanical Engineering 16 Jr. Sr.	Philosophy 16 Sr.	Political Economy 10 Jr. Sr.
Mechanical Engineering 19 Jr. Sr.	Physics 1 So. Jr. Sr. " 4 So. Jr. Sr. " 7 Jr. Sr.	Political Economy 20 Jr. Sr.
Mechanical Engineering 22 Sr.	" 8 Sr.	Political Science 1 So. Jr. Sr.
Mechanical Engineering 23 Sr.	" 11 Sr.	Political Science 2 Jr. Sr.
Mechanics 1 So. Jr. Sr. " 2 Jr. Sr.	" 14 Sr. " 17 Sr. " 20 Jr. Sr. " 23 Sr.	Political Science 3 Jr. Sr.
Philosophy 1 So. Jr. Sr.	Political Economy 2 Jr. Sr.	Political Science 20 Jr. Sr.
Philosophy 2 Jr. " 3 Sr. " 4 Jr. Sr. " 5 Sr. " 6 Jr. Sr. " 9 Sr.	Political Economy 3 Jr. Sr.	Social Science 2 Jr. Sr.
Astronomy 2 Jr. Sr. " 5 Jr. Sr. " 8 So. Jr. Sr.	Political Economy 5 Jr. Sr.	Social Science 10 Jr. Sr.
Astronomy 11 Sr.	Civil Engineering 7 Jr. Sr.	Spanish 38 So. Jr. " 41 Jr. Sr.
Biblical Literature 1 Jr. Sr.	Civil Engineering 8 Jr. Sr.	
Biblical Literature 2 Sr.	Civil Engineering 12 Jr. Sr.	
Biblical Literature 3 Sr.	Civil Engineering 14 Jr. Sr.	
Biblical Literature 6 Sr.	Civil Engineering 24 Sr.	
Biblical Literature 11 Jr. Sr.	Civil Engineering 27 Sr.	
Biblical Literature 14 So. Jr. Sr.	Civil Engineering 29 Sr.	
Biblical Literature 15 Jr. Sr.	Civil Engineering 30 Sr.	
Botany 1 Fr. So. Jr. Sr.	Civil Engineering 32 Sr.	
Botany 2 So. Jr. Sr.	Civil Engineering 34 Sr.	
Botany 6 Jr. Sr.	Comparative Anatomy 1 Fr. So. Jr. Sr.	
Chemistry 2 Fr. So. Jr. Sr.	Comparative Anatomy 2 So. Jr. Sr.	
Chemistry 5 So. Jr. Sr. " 8 Jr. Sr. " 11 Jr. Sr. " 19 Jr. Sr. " 25 Jr. Sr. " 28 Jr. Sr. " 34 Sr. " 37 Sr.	Comparative Anatomy 4 Jr. Sr.	
Civil Engineering 5 So. Jr. Sr.	Comparative Anatomy 7 Jr. Sr.	
	Comparative Anatomy 10 Jr. Sr.	
	Drawing 3 Fr. So. Jr. Sr.	
	Drawing 5 So. Jr. Sr. " 7 So. Jr. Sr. " 8 Fr. So. Jr. Sr.	
	Education 2 Jr. Sr. " 5 Sr.	

## SECOND TERM

Art 2 Jr. Sr. " 5 Jr. Sr. " 10 Fr. So. Jr. Sr. " 11 Jr. Sr.	Civil Engineering 7 Jr. Sr.	Electrical Engineering 2 Jr. Sr.
Astronomy 2 Jr. Sr. " 5 Jr. Sr. " 8 So. Jr. Sr.	Civil Engineering 8 Jr. Sr.	Electrical Engineering 5 Jr. Sr.
Biblical Literature 1 Jr. Sr.	Civil Engineering 12 Jr. Sr.	Electrical Engineering 8 Jr. Sr.
Biblical Literature 2 Sr.	Civil Engineering 14 Jr. Sr.	Electrical Engineering 11 Sr.
Biblical Literature 3 Sr.	Civil Engineering 24 Sr.	Electrical Engineering 12 Sr.
Biblical Literature 6 Sr.	Civil Engineering 27 Sr.	English 2 So.
Biblical Literature 11 Jr. Sr.	Civil Engineering 29 Sr.	" 3 So. Jr. Sr.
Biblical Literature 14 So. Jr. Sr.	Civil Engineering 30 Sr.	" 4 Jr. Sr.
Biblical Literature 15 Jr. Sr.	Civil Engineering 32 Sr.	" 6 Jr. Sr.
Botany 1 Fr. So. Jr. Sr.	Civil Engineering 34 Sr.	" 7 Jr. Sr.
Botany 2 So. Jr. Sr.	Comparative Anatomy 1 Fr. So. Jr. Sr.	" 9 Jr. Sr.
Botany 6 Jr. Sr.	Comparative Anatomy 2 So. Jr. Sr.	" 10 Jr. Sr.
Chemistry 2 Fr. So. Jr. Sr.	Comparative Anatomy 4 Jr. Sr.	" 11 So. Jr. Sr.
Chemistry 5 So. Jr. Sr. " 8 Jr. Sr. " 11 Jr. Sr. " 19 Jr. Sr. " 25 Jr. Sr. " 28 Jr. Sr. " 34 Sr. " 37 Sr.	Comparative Anatomy 7 Jr. Sr.	" 13 Jr. Sr.
Civil Engineering 5 So. Jr. Sr.	Comparative Anatomy 10 Jr. Sr.	" 15 Jr. Sr.
	Drawing 3 Fr. So. Jr. Sr.	" 16 Jr. Sr.
	Drawing 5 So. Jr. Sr. " 7 So. Jr. Sr. " 8 Fr. So. Jr. Sr.	" 19 So. Jr. Sr.
	Education 2 Jr. Sr. " 5 Sr.	" 20 So. Jr. Sr.
		" 22 Jr. Sr.
		" 23 Sr.
		French 3 So. Jr. Sr. " 6 Fr. So. Jr. Sr.
		French 12 So. Jr. Sr. " 24 Jr. Sr.
		Geology 7 Jr. Sr.
		German 4 So. Jr. Sr. " 6 So. Jr. Sr.
		" 7 So. Jr. Sr.
		" 8 So. Jr. Sr.
		" 11 Jr. Sr.
		" 13 Jr. Sr.

German 17 Jr. Sr.	Mathematics 12 So. Jr. Sr.	Physics 7 Jr. Sr.
Greek B Fr. So. Jr. Sr.	" 9 Sr.	" 9 Sr.
" 2 Fr. So. Jr. Sr.	" 12 Sr.	" 12 Sr.
" 5 So.	" 15 Sr.	" 15 Sr.
" 11 Jr. Sr.	" 18 Sr.	" 18 Sr.
" 19 So. Jr. Sr.	" 21 Sr.	" 21 Sr.
" 21 So. Jr. Sr.	" 23 Sr.	" 23 Sr.
" 24 Sr.	Mechanical Engineering 1-7 So. Jr. Sr.	Political Economy 2 Jr. Sr.
History 3 Jr. Sr.	Mechanical Engineering 17 Jr. Sr.	Political Economy 3 Jr. Sr.
" 5 Jr. Sr.	Mechanical Engineering 20 Jr. Sr.	Political Economy 5 Jr. Sr.
" 9 Jr. Sr.	Mechanical Engineering 22 Sr.	Political Economy 11 Jr. Sr.
" 15 Sr.	Mechanics 1 So. Jr. Sr.	Political Economy 21 Jr. Sr.
" 20 Jr. Sr.	" 2 Jr. Sr.	Political Science 2 Jr. Sr.
" 23 Sr.	Philosophy 1 So. Jr. Sr.	Political Science 4 Jr. Sr.
Italian 27 So. Jr. Sr.	Philosophy 2 Jr.	Political Science 21 Jr. Sr.
" 33 Jr. Sr.	" 3 Sr.	Social Science 1 So. Jr. Sr.
" 36 Jr. Sr.	" 4 Jr. Sr.	Social Science 2 Jr. Sr.
Latin 2 Fr. So. Jr. Sr.	" 5 Sr.	Spanish 39 So. Jr.
" 5 So.	" 7 Jr. Sr.	" 42 Jr. Sr.
" 8 Jr. Sr.	" 10 Sr.	
" 14 Jr. Sr.	" 16 Sr.	
" 23 So. Jr. Sr.	Physics 2 So. Jr. Sr.	
" 30 Fr. So.	Physics 5 So. Jr. Sr.	
" 32 So. Jr. Sr.		
Mathematics 4 So. Jr. Sr.		
Mathematics 7 So. Jr. Sr.		
Mathematics 10 Jr. Sr.		

## THIRD TERM

Art 3 Jr. Sr.	Chemistry 3 Fr. So. Jr. Sr.	Civil Engineering 28 Sr.
" 6 Jr. Sr.	" 9 Jr. Sr.	Civil Engineering 31 Sr.
" 10 Fr. So. Jr. Sr.	" 12 Jr. Sr.	Civil Engineering 33 Sr.
" 11 Jr. Sr.	" 13 Sr.	Comparative Anatomy 1 Fr. So. Jr. Sr.
Astronomy 3 Jr. Sr.	" 14 Sr.	Comparative Anatomy 2 So. Jr. Sr.
" 6 Jr. Sr.	" 20 Jr. Sr.	Comparative Anatomy 5 Jr. Sr.
" 9 So. Jr. Sr.	" 26 Jr. Sr.	Comparative Anatomy 6 So. Jr. Sr.
Astronomy 12 Sr.	" 29 Jr. Sr.	Comparative Anatomy 8 Jr. Sr.
Biblical Literature 1 Jr. Sr.	" 35 Sr.	Comparative Anatomy 10 Jr. Sr.
Biblical Literature 2 Sr.	" 38 Sr.	Drawing 3 Fr. So. Jr. Sr.
Biblical Literature 3 Sr.	Civil Engineering 6 So. Jr. Sr.	Drawing 6 So. Jr. Sr.
Biblical Literature 6 Sr.	Civil Engineering 9 Jr. Sr.	" 7 So. Jr. Sr.
Biblical Literature 12 Jr. Sr.	Civil Engineering 13 Jr. Sr.	" 8 Fr. So. Jr. Sr.
Biblical Literature 14 So. Jr. Sr.	Civil Engineering 15 Jr. Sr.	Sr.
Biblical Literature 15 Jr. Sr.	Civil Engineering 17 Sr.	Education 3 Jr. Sr.
Botany 1 Fr. So. Jr. Sr.	Civil Engineering 18 Sr.	" 6 Sr.
Botany 2 So. Jr. Sr.	Civil Engineering 19 So. Jr. Sr.	
Botany 6 Jr. Sr.		

Electrical Engineering	Greek 20 So. Jr. Sr.	Philosophy 1 So. Jr. Sr.
3 Jr. Sr.	" 22 So. Jr. Sr.	" 3 Sr.
Electrical Engineering	" 25 Sr.	" 4 Jr. Sr.
6 Jr. Sr.	" 35 Fr. So.	" 5 Sr.
Electrical Engineering	History 6 So. Jr. Sr.	" 8 Jr. Sr.
9 Jr. Sr.	" 7 So. Jr. Sr.	" 11 Jr.
Electrical Engineering	" 10 Jr. Sr.	" 12 Sr.
13 Sr.	" 16 Sr.	" 16 Jr.
English 2 So.	" 21 Jr. Sr.	Physics 3 So. Jr. Sr.
" 3 So. Jr. Sr.	" 24 Sr.	" 6 So. Jr. Sr.
" 4 Jr. Sr.	Italian 28 So. Jr. Sr.	" 7 Jr. Sr.
" 6 Jr. Sr.	" 34 Jr. Sr.	" 10 Sr.
" 7 So. Jr. Sr.	" 37 Jr. Sr.	" 13 Sr.
" 9 Jr. Sr.	Latin 3 Fr. So. Jr. Sr.	" 16 Sr.
" 10 Jr. Sr.	" 6 So.	" 19 Sr.
" 11 So. Jr. Sr.	" 9 Jr. Sr.	" 22 Jr. Sr.
" 13 Jr. Sr.	" 15 Jr. Sr.	" 23 Sr.
" 15 Jr. Sr.	" 24 So. Jr. Sr.	Political Economy 1
" 16 Jr. Sr.	" 33 So. Jr. Sr.	So. Jr. Sr.
" 19 So. Jr. Sr.	Mathematics 5 So. Jr. Sr.	Political Economy 2
" 20 So. Jr. Sr.	Mathematics 8 So. Jr. Sr.	Jr. Sr.
" 22 Jr. Sr.	Mathematics 11 Jr. Sr.	Political Economy 5
" 23 Sr.	Mathematics 14 So. Jr. Sr.	Jr. Sr.
French 4 So. Jr. Sr.	Mathematics 26 Sr.	Political Economy 8
French 7 Fr. So. Jr. Sr.	Mechanical Engineering 1-7 So. Jr. Sr.	Jr. Sr.
Geology 3 So. Jr. Sr.	Mechanical Engineering 8 So. Jr. Sr.	Political Economy 12
" 10 Sr.	Mechanical Engineering 11 Jr. Sr.	Jr. Sr.
German 5 So. Jr. Sr.	Mechanical Engineering 14 Sr.	Political Economy 22
" 6 So. Jr. Sr.	Mechanical Engineering 15 Sr.	Jr. Sr.
" 7 So. Jr. Sr.	Mechanical Engineering 18 Jr. Sr.	Political Science 2 Jr.
" 8 So. Jr. Sr.	Mechanical Engineering 21 Jr. Sr.	Sr.
" 11 Jr. Sr.	Mechanics 1 So. Jr. Sr.	Political Science 5 Jr.
" 14 Jr. Sr.		Sr.
" 17 Jr. Sr.		Political Science 22 Jr.
Greek C Fr. So. Jr. Sr.		Sr.
" 3 Fr. So. Jr. Sr.		Social Science 2 Jr. Sr.
" 6 So.		"     " 3 Jr. Sr.
" 12 Jr. Sr.		Spanish 40 So. Jr.
		Spanish 43 Jr. Sr.









# TIME SCHEDULE, FIRST TERM

[All courses not here assigned will meet as arranged with the several instructors.]

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
					Mathematics 3 (1) (4)	
<b>2.20 P. M.</b>	Civil Engineering 9 Astronomy 4 Biblical Literature 10 Civil Engineering 4 Comparative Anatomy 1 Drawing 4 English 22 French 1 (2) (3) Geology 9 History 8 Latin 1 (3) Mech. Engineering 9 Mech. Engineering 22 (1)	Civil Engineering 10 Art 10 Art 11 Astronomy 4 Biblical Literature 10 Chemistry 1 (b) Civil Engineering 1 (1) Comparative Anatomy 1 English 22 French 1 (2) (3) Geology 9 History 8 Latin 1 (3) Mech. Engineering 19 Mech. Engineering 22 (2)	Civil Engineering 10 Civil Engineering 11 Mech. Engineering 4-7 Mech. Engineering 23	Civil Engineering 10 Art 10 Art 11 Astronomy 4 Biblical Literature 10 Chemistry 1 (c) Comparative Anatomy 1 Drawing 4 English 22 French 1 (2) (3) Geology 9 History 8 Latin 1 (3) Mech. Engineering 9 Mech. Engineering 22 (3)	Civil Engineering 25 Art 10 Art 11 Chemistry 1 (d) Civil Engineering 4 English 5 Latin 13 Mech. Engineering 4-7 Mech. Engineering 23	Mathematics 3 (1) (4)
<b>3.20 P. M.</b>	Chemistry 1 (a) Civil Engineering 4 Comparative Anatomy 1 Drawing 4 Education 13 English 5 Latin 22 Mech. Engineering 9 Mech. Engineering 22 (1)	Astronomy 1 Civil Engineering 1 (1) Comparative Anatomy 1 Drawing 4 English 10 French 2 (2) (4) Mathematics 9 Mech. Engineering 19 Mech. Engineering 22 (2) Gymnasium (Soph.) (2)	Civil Engineering 11 Education 7 Mech. Engineering 4-7 Mech. Engineering 23	Civil Engineering 11 Comparative Anatomy 1 Drawing 4 English 10 French 2 (2) (4) Mathematics 9 Mech. Engineering 9 Mech. Engineering 22 (3) Gymnasium (Soph.) (2)	Civil Engineering 4 Civil Engineering 4 Education 13 Mech. Engineering 4-7 Mech. Engineering 23	Mathematics 3 (1) (4)
<b>4.20 P. M.</b>	Civil Engineering 4 Drawing 4 Political Science 15 Mech. Engineering 9 Gymnasium (Fresh.) (2)	Gymnasium (Fresh.) (2)	Civil Engineering 11 Education 7 Mech. Engineering 4-7 Mech. Engineering 23	Drawing 4 Mech. Engineering 9 Gymnasium (Fresh.) (2)	Mech. Engineering 4-7	Mathematics 3 (1) (4)
<b>5.20 P. M.</b>	Social Science 7					Mathematics 3 (1) (4)

# TIME SCHEDULE, FIRST TERM

[All courses not here assigned will meet as arranged with the several instructors.]

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
8.00 A. M.	Civil Engineering 25 Mathematics 17 (1)	Civil Engineering 10 Civil Engineering 25 Mathematics 17 (1) (4) Mathematics 17 (1) Mathematics 20	Civil Engineering 10 Mathematics 3 (1) (4) Mathematics 17 (1) Mathematics 20	Civil Engineering 10 Mathematics 17 (1) Mathematics 20	Civil Engineering 25 Mathematics 3 (1) (4) Mathematics 17 (1) Mathematics 20	Mathematics 3 (1) (4) Mathematics 17 (1) Mathematics 20	
9.20 A. M.	Chemistry 10 Civil Engineering 23 Drawing 1 Electrical Engineering 1 German 11 Mathematics 15 Mathematics 16 Mathematics 17 (2) Philosophy 1 Philosophy 6	Civil Engineering 23 Drawing 1 Electrical Engineering 7 French 1 (1) German 1 (1) History 1 Mathematics 15 Mathematics 16 Mathematics 17 (2) Mech. Engineering 19 Philosophy 9	Civil Engineering 11 French 1 (1) German 1 (1) (2) History 1 Mathematics 3 (2) (3) (5) Mathematics 17 (2) Mech. Engineering 19 Philosophy 9	Chemistry 10 Civil Engineering 23 French 1 (1) German 1 (1) (2) History 1 Mathematics 3 (2) (3) (5) Mathematics 17 (2) Mech. Engineering 19 Philosophy 9	Chemistry 10 Civil Engineering 23 French 1 (1) German 1 (1) History 1 Mathematics 15 Mathematics 16 Mathematics 17 (2) Philosophy 1 Philosophy 6	Drawing 1 Electrical Engineering 7 French 1 (1) German 1 (1) (2) History 1 Mathematics 3 (2) (3) (5) Mathematics 17 (2) Mech. Engineering 19 Philosophy 9	
10.20 A. M.	Art 1 Astronomy 7 Biblical Literature 14 Chemistry 1 (1) Chemistry 7 Comparative Anatomy 3 Civil Engineering 26 Drawing 1 Drawing 2 Electrical Engineering 10 English 2 English 3 English 4 English 9 German 3 (1) Greek 4 Mathematics 17 (3) Mech. Engineering 12 Italian 32 Physics 1 Political Science 3 Spanish 41 (Gymnasium (Soph.) (1)	Chemistry 1 (2) Chemistry 7 Astronomy 7 Biblical Literature 14 Chemistry 1 (e) Comparative Anatomy 7 Civil Engineering 26 Drawing 1 Drawing 2 German 6 German 2 (2) English 10 Greek 1 (1) Latin 7 Mathematics 17 (3) Physics 4 Greek 3 (1) Political Economy 2 Political Science 1 (1) Spanish 38 Gymnasium (Fresh.) (1)	Art 1 Astronomy 7 Biblical Literature 14 Chemistry 1 (1) Chemistry 7 Comparative Anatomy 3 Civil Engineering 11 Comparative Anatomy 3 Drawing 1 Drawing 2 English 2 English 3 English 4 English 9 Greek 1 (1) Italian 26 Mathematics 17 (3) Physics 4 Greek 4 Italian 32 Mathematics 17 (3) Mech. Engineering 22 Physics 1 Political Science 3 Spanish 41 Gymnasium (Soph.) (1)	Art 1 Astronomy 7 Biblical Literature 14 Chemistry 1 (1) Chemistry 7 Comparative Anatomy 2 Civil Engineering 26 Comparative Anatomy 3 Drawing 1 Drawing 2 English 6 English 2 English 3 English 4 English 9 Greek 1 (1) Italian 26 Mathematics 17 (3) Mech. Engineering 22 Physics 4 Political Economy 2 Political Science 1 (1) Spanish 38 Gymnasium (Fresh.) (1)	Chemistry 1 (2) Chemistry 7 Comparative Anatomy 2 Comparative Anatomy 7 Drawing 1 Electrical Engineering 10 English 16 French 23 German 6 German 2 (2) Greek 1 (1) Italian 26 Latin 7 Mathematics 17 (3) Mech. Engineering 22 Physics 4 Political Economy 2 Political Science 1 (1) Spanish 38 Gymnasium (Fresh.) (1)	Chemistry 4 (2) Chemistry 7 Comparative Anatomy 2 Comparative Anatomy 7 Drawing 1 Education 16 English 16 French 23 German 6 German 2 (2) Greek 1 (1) Italian 26 Latin 7 Mathematics 17 (3) Mech. Engineering 22 Physics 4 Political Economy 2 Political Science 1 (1) Spanish 38 Gymnasium (Fresh.) (1)	
11.20 A. M.	Biblical Literature 1 Botany 1 Chemistry 4 Chemistry 18 Civil Engineering 26 Comparative Anatomy 8 Education 4 Electrical Engineering 4 English 1 (4) (2) (3)	Biblical Literature 1 Botany 1 Chemistry 4 Chemistry 18 Civil Engineering 26 Comparative Anatomy 8 Education 4 English 1 (1) (2) (3) French 5 French 11 German 1 (4) German 7 Greek 34 Latin 35 Mathematics 45 Mech. Engineering 12 Mechanics 1 Political Economy 5 Political Science 1 (2) Social Science 2	Chemistry 1 (3) Chemistry 4 Civil Engineering 11 Chemistry 18 Civil Engineering 26 Comparative Anatomy 8 Education 4 English 1 (1) (2) (3) French 5 French 11 German 1 (4) German 7 Greek 34 Latin 35 Mathematics 45 Mech. Engineering 12 Mechanics 1 Political Economy 5 Political Science 1 (2) Social Science 2	Biblical Literature 1 Botany 1 Chemistry 4 Chemistry 18 Civil Engineering 26 Comparative Anatomy 8 Education 4 English 1 (1) (2) (3) French 5 French 11 German 1 (4) German 7 Greek 34 Latin 35 Mathematics 45 Mech. Engineering 12 Mechanics 1 Political Economy 5 Political Science 1 (2) Social Science 2	Biblical Literature 1 Botany 1 Chemistry 4 Chemistry 18 Civil Engineering 26 Comparative Anatomy 8 Education 4 English 1 (1) (2) (3) French 5 French 11 German 1 (4) German 7 Greek 34 Latin 35 Mathematics 45 Mech. Engineering 12 Mechanics 1 Political Economy 5 Political Science 1 (2) Social Science 2	Chemistry 4 (1) Civil Engineering 1 (2) Electrical Engineering 4 English 7 English 30 French 2 (1) (3) (5) German 3 (2) German 2 (1)	Chemistry 1 (3) Chemistry 4 Education 16 English 7 English 30 French 2 (1) (3) (5) German 3 (2) German 2 (1)
12.20 P. M.	Botany 2 Education 1 English 1 (4) (5) (6) English 13 Geology 6 History 4 Latin 1 Mathematics 4 Mech. Engineering 12 Physics 7 Political Science 2	Art 4 Drawing 4 English 11 English 15 Geology 6 History 2 Latin 1 (2) Mathematics 4 Greek 1 (2) History 2 Latin 1 Mathematics 6 Mech. Engineering 9 Political Economy 10	Botany 2 Civil Engineering 11 Education 1 English 1 (4) (5) (6) English 15 Geology 6 History 4 Latin 1 (1) Mathematics 4 Greek 1 (2) History 2 Latin 1 Mathematics 4 Mech. Engineering 16 Political Science 2	Art 4 Botany 2 Education 1 English 1 (4) (5) (6) English 15 Geology 6 History 4 Latin 1 (1) Mathematics 4 Greek 1 (2) History 2 Latin 1 (2) Mathematics 6 Mech. Engineering 12 Political Economy 10	Botany 2 Education 1 English 1 (4) (5) (6) English 15 Geology 6 History 4 Latin 1 (1) Mathematics 4 Mech. Engineering 16 Political Science 2	Art 4 English 11 English 15 Geology 6 History 2 Latin 1 (1) Mathematics 6 Mech. Engineering 16 Political Economy 10	
2.20 P. M.	Astronomy 4 Biblical Literature 10 Civil Engineering 4 Comparative Anatomy 1 Drawing 4 French 1 (2) (3) Geology 9 History 8 Latin 1 (3) Mech. Engineering 9 Mech. Engineering 22 (1)	Art 10 Art 11 Astronomy 4 Biblical Literature 10 Comparative Anatomy 1 (b) Civil Engineering 1 (1) Comparative Anatomy 1 English 22 French 1 (2) (3) Geology 9 History 8 Latin 1 (3) Mech. Engineering 19 Mech. Engineering 22 (2)	Civil Engineering 11 Mech. Engineering 4-7 Mech. Engineering 23	Art 10 Art 11 Astronomy 4 Biblical Literature 10 Comparative Anatomy 1 Drawing 4 French 2 (2) (4) Geology 9 History 8 Latin 1 (3) Mech. Engineering 9 Mech. Engineering 22 (3)	Art 10 Art 11 Chemistry 1 (d) Civil Engineering 4 Chemistry 1 (c) Comparative Anatomy 1 Drawing 4 French 2 (2) (4) Geology 9 History 8 Latin 1 (3) Mech. Engineering 9 Mech. Engineering 22 (3)	Art 10 Art 11 Chemistry 1 (d) Civil Engineering 4 Chemistry 1 (c) Comparative Anatomy 1 Drawing 4 French 2 (2) (4) Geology 9 History 8 Latin 1 (3) Mech. Engineering 9 Mech. Engineering 22 (3)	
3.20 P. M.	Chemistry 1 (a) Civil Engineering 4 Comparative Anatomy 1 Drawing 4 Education 13 English 5 Latin 22 Mech. Engineering 9 Mech. Engineering 22 (1)	Chemistry 1 (a) (Civil Engineering 1 (1) Comparative Anatomy 1 Drawing 4 French 2 (2) (4) Mathematics 9 Mech. Engineering 19 Mech. Engineering 22 (2) Gymnasium (Soph.) (2)	Civil Engineering 11 Education 7 Mech. Engineering 4-7 Mech. Engineering 23	Civil Engineering 11 Education 7 Mech. Engineering 4-7 Mech. Engineering 23	Astronomy 1 Comparative Anatomy 1 Drawing 4 French 2 (2) (4) Mathematics 9 Mech. Engineering 9 Mech. Engineering 22 (3) Gymnasium (Soph.) (2)	Astronomy 1 Comparative Anatomy 1 Drawing 4 French 2 (2) (4) Mathematics 9 Mech. Engineering 9 Mech. Engineering 22 (3) Gymnasium (Soph.) (2)	
4.20 P. M.	Civil Engineering 4 Drawing 4 Mathematics 15 Mech. Engineering 9 Gymnasium (Fresh.) (2)	Gymnasium (Fresh.) (2)	Civil Engineering 11 Education 7 Mech. Engineering 4-7 Mech. Engineering 23	Drawing 4 Mech. Engineering 9 Gymnasium (Fresh.) (2)	Civil Engineering 4 Education 13 Mech. Engineering 4-7 Mech. Engineering 23	Civil Engineering 4 Education 13 Mech. Engineering 4-7 Mech. Engineering 23	
5.20 P. M.	Social Science 7			Drawing 4	Mech. Engineering 4-7	Mech. Engineering 4-7	

[All courses not here assigned will meet as arranged with the several instructors]

					SATURDAY
					MATHEMATICS 1 (1) (4)
<b>3.20</b> <b>P. M.</b>	Civil Engineering 30 Latin 2 (3) Mech. Engineering 10 Mech. Engineering 22 (1)	TUESDAY	Mathematics 1 (1) (4)	WEDNESDAY	CIVIL ENGINEERING 14 Civil Engineering 14 French 1 (2) (3) History 9 Latin 2 (3) Mech. Engineering 20 Mech. Engineering 22 (2)
<b>4.20</b> <b>P. M.</b>	Chemistry 2 (a) Civil Engineering 5 Comparative Anatomy 1 Drawing 5 English 6 Education 14 Latin 23 Mech. Engineering 10 Mech. Engineering 22 (1)	MONDAY	Civil Engineering 27 Civil Engineering 27 Comparative Anatomy 1 Education 8 English 10 French 3 (2) (4) Mathematics 10 Mech. Engineering 20 Mech. Engineering 22 (2) Gymnasium (Soph.) (2)	TUESDAY	Astronomy 2 Civil Engineering 7 Civil Engineering 27 Comparative Anatomy 1 Drawing 5 English 10 French 3 (2) (4) Mathematics 10 Mech. Engineering 22 (3) Gymnasium (Soph.) (2)
<b>5.20</b> <b>P. M.</b>	Civil Engineering 5 Drawing 5 English 6 Mech. Engineering 10 Political Science 15 Gymnasium (Fresh.) (2) Social Science 7	WEDNESDAY	CIVIL ENGINEERING 14 Civil Engineering 14 French 22 French 1 (2) (3) History 9 Latin 2 (3) Mech. Engineering 10 Mech. Engineering 22 (3)	THURSDAY	Astronomy 2 Civil Engineering 5 Civil Engineering 30 Civil Engineering 30 Education 11 English 6 English 10 French 3 (2) (4) Mathematics 10 Mech. Engineering 4-7 Mech. Engineering 24 Gymnasium (Soph.) (2)
		FRIDAY	CIVIL ENGINEERING 14 Civil Engineering 14 Mech. Engineering 4-7 Mech. Engineering 24		CIVIL ENGINEERING 14 Civil Engineering 14 Mech. Engineering 4-7 Mech. Engineering 24
		SATURDAY			MATHEMATICS 1 (1) (4)

## TIME SCHEDULE: SECOND TERM

[All courses not here assigned will meet as arranged with the several instructors.]

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8.00 A. M.	Civil Engineering 30 Mathematics 18 (1)	Civil Engineering 14 Civil Engineering 27 Mathematics 1 (1) (4) Mathematics 18 (1) Mathematics 21	Mathematics 1 (1) (4) Mathematics 18 (1) Mathematics 21	Civil Engineering 14 Mathematics 18 (1)	Civil Engineering 14 Mathematics 1 (1) (4) Mathematics 18 (1) Mathematics 21	Mathematics 1 (1) (4) Mathematics 18 (1)
9.20 A. M.	Civil Engineering 27 Chemistry 11 Drawing 1 Electrical Engineering 2 German 1 (3) German 1 (1) Mathematics 16 Mathematics 18 (2) Philosophy 1 Philosophy 7	Civil Engineering 12 Civil Engineering 24 Drawing 1 Electrical Engineering 8 French 1 (1) German 1 (1) (2) History 1 Mathematics 1 (2) (3) (5) Mathematics 18 (2) Mech. Engineering 20 Philosophy 10	Civil Engineering 12 Drawing 1 French 1 (1) German 1 (1) (2) History 1 Mathematics 1 (2) (3) (5) Mathematics 18 (2) Mech. Engineering 20 Philosophy 10	Chemistry 11 Civil Engineering 24 Drawing 1 Electrical Engineering 2 German 1 (3) German 11 Mathematics 16 Mathematics 18 (2) Mech. Engineering 20 Philosophy 7	Chemistry 11 Civil Engineering 12 Drawing 1 Electrical Engineering 8 German 1 (3) German 11 Mathematics 16 Mathematics 18 (2) Philosophy 1 Philosophy 7	Drawing 1 Electrical Engineering 8 French 1 (1) German 1 (1) (2) History 1 Mathematics 1 (2) (3) (5) Mathematics 18 (2) Mech. Engineering 20 Philosophy 10
10.20 A. M.	Art 2 Astronomy 8 Biblical Literature 14 Chemistry 2 (1) Chemistry 8 Civil Engineering 27 Drawing 1 Drawing 3 Drawing 8 Electric Engineering 11 English 2 English 3 English 4 English 9 German 4 (1) Greek 3 Latin 33 Mathematics 18 (3) Mech. Engineering 13 Physics 2 Political Science 4 Spanish 42 Gymnasium (Soph.) (1)	Chemistry 2 (2) Chemistry 8 Civil Engineering 34 Comparative Anatomy 2 Comparative Anatomy 7 Drawing 1 Electrical Engineering 12 English 16 French 24 German 6 German 2 (2) English 3 Greek 2 (1) Italian 27 Latin 8 Mathematics 18 (3) Physics 2 Political Economy 2 Social Science 1 (1) Spanish 39 Gymnasium (Fresh.) (1)	Art 2 Astronomy 8 Biblical Literature 14 Chemistry 2 (e) Chemistry 8 Civil Engineering 29 Drawing 1 Drawing 3 Drawing 8 Electric Engineering 12 English 16 French 24 German 6 German 2 (2) English 3 English 4 Italian 27 Latin 8 Mathematics 18 (3) Physics 2 Political Science 4 Spanish 42 Gymnasium (Soph.) (1)	Art 2 Astronomy 8 Biblical Literature 14 Chemistry 2 (1) Chemistry 8 Civil Engineering 29 Drawing 1 Drawing 3 Drawing 8 Electric Engineering 11 English 16 French 24 German 6 German 2 (2) English 3 English 4 Italian 27 Latin 8 Mathematics 18 (3) Mech. Engineering 22 Physics 5 Political Economy 2 Social Science 1 (1) Spanish 39 Gymnasium (Fresh.) (1)	Chemistry 2 (2) Chemistry 8 Civil Engineering 2 (2) Comparative Anatomy 2 Comparative Anatomy 7 Drawing 1 Education 17 Electric Engineering 11 English 16 French 24 German 6 German 2 (2) Greek 2 (1) Italian 27 Latin 8 Mathematics 18 (3) Mech. Engineering 22 Physics 5 Political Economy 2 Social Science 1 (1) Spanish 39 Gymnasium (Fresh.) (1)	Chemistry 5 (2) Chemistry 8 Comparative Anatomy 2 Comparative Anatomy 7 Drawing 1 Education 17 Electric Engineering 12 English 16 French 24 German 6 German 2 (2) Greek 2 (1) Italian 27 Latin 8 Mathematics 18 (3) Physics 9 Political Economy 2 Social Science 1 (1) Spanish 39 Gymnasium (Fresh.) (1)
11.20 A. M.	Biblical Literature 1 Botany 1 Chemistry 5 Chemistry 19 Civil Engineering 27 Education 5 Electrical Engineering 5 English 1 (1) (2) (3) English 19 French 6 French 12 German 1 (4) German 7 Italian 36 Latin 36 Latin 30 Mech. Engineering 13 Mechanics 1 Political Economy 5 Social Science 1 (2) Social Science 2	Biblical Literature 1 Botany 1 Chemistry 5 Chemistry 19 Chemistry 20 Education 5 French 1 (1) (2) (3) French 19 French 6 French 12 German 1 (4) German 7 German 8 Italian 36 Latin 36 Mechanics 1 Political Economy 5 Social Science 1 (2) Social Science 2	Biblical Literature 1 Chemistry 2 (3) Chemistry 5 Chemistry 7 Chemistry 19 Chemistry 20 Education 5 French 3 (1) (3) (5) French 20 German 4 (2) German 2 (1) Greek 1 History 20 Latin 2 (1) Latin 32 Latin 36 Mathematics 4 Mech. Engineering 17 Mechanics 2 Philosophy 2 Political Economy 3	Biblical Literature 1 Botany 1 Chemistry 5 Chemistry 7 Chemistry 19 Chemistry 20 Education 5 French 3 (1) (3) (5) French 20 German 4 (2) German 2 (1) Greek 1 History 20 Latin 2 (1) Latin 32 Latin 36 Mathematics 4 Mech. Engineering 17 Mechanics 2 Philosophy 2 Political Economy 3	Biblical Literature 1 Chemistry 5 (1) Civil Engineering 2 (2) Electrical Engineering 5 English 7 English 20 Electrical Engineering 5 French 3 (1) (3) (5) French 20 German 4 (2) German 2 (1) Greek 11 History 20 German 1 (4) Latin 2 (1) Latin 32 Latin 36 Mathematics 4 Mech. Engineering 17 Mechanics 2 Philosophy 2 Political Economy 3	Chemistry 2 (3) Chemistry 5 Education 17 Electric Engineering 5 English 7 English 20 French 11 History 20 Greek 11 History 20 Latin 2 (1) Latin 32 Latin 36 Mathematics 4 Mech. Engineering 17 Mechanics 2 Philosophy 2 Political Economy 3
12.20 P. M.	Botany 2 Education 2 English 1 (4) (5) (6) English 13 Geology 7 History 5 Latin 5 Mathematics 4 Mech. Engineering 13 Physics 7 Political Science 2	Art 5 Drawing 5 English 11 English 15 English 15 German 1 (5) German 3 History 5 Latin 2 (2) Latin 5 Greek B History 3 Latin 2 (2) Mathematics 7 Mech. Engineering 10 Political Economy 11	Botany 2 Education 2 English 1 (4) (5) (6) English 13 Geology 7 History 5 Latin 5 Mathematics 4 Mech. Engineering 17 Political Science 2	Art 5 English 11 English 15 German 1 (5) German 13 Greek 2 (2) History 3 Latin 2 (2) Latin 5 Mathematics 7 Mech. Engineering 13 Political Economy 11	Botany 2 Education 2 English 1 (4) (5) (6) English 13 Geology 7 History 5 Latin 5 Mathematics 4 Mech. Engineering 17 Political Science 2	Art 5 English 11 English 15 German 1 (5) German 13 Greek 2 (2) History 3 Latin 2 (2) Latin 5 Mathematics 4 Mech. Engineering 17 Political Science 2
2.20 P. M.	Astronomy 5 Biblical Literature 11 Civil Engineering 5 Comparative Anatomy 1 Drawing 5 English 22 French 1 (2) (3) History 9 Latin 2 (3) Mech. Engineering 10 Mech. Engineering 22 (1)	Art 10 Art 11 Astronomy 5 Biblical Literature 11 Chemistry 2 (b) Civil Engineering 2 (1) Comparative Anatomy 1 English 24	Civil Engineering 7 Civil Engineering 27 Mech. Engineering 4-7 Mech. Engineering 24	Art 10 Art 11 Astronomy 5 Biblical Literature 11 Chemistry 2 (c) Civil Engineering 7 Comparative Anatomy 1 Drawing 5 English 22 French 1 (2) (3) History 9 Latin 2 (3) Mech. Engineering 10 Mech. Engineering 22 (2)	Art 10 Art 11 Chemistry 2 (d) Civil Engineering 5 Civil Engineering 30 English 6 Greek 10 History 14 Latin 14 Mech. Engineering 4-7 Mech. Engineering 24	Art 5 English 11 English 15 German 1 (5) German 13 Greek 2 (2) History 3 Latin 2 (2) Latin 5 Mathematics 4 Mech. Engineering 17 Political Science 2
3.20 P. M.	Chemistry 2 (a) Civil Engineering 5 Comparative Anatomy 1 Drawing 5 English 6 Education 14 Latin 23 Mech. Engineering 10 Mech. Engineering 22 (1)	Astronomy 2 Civil Engineering 2 (1) Comparative Anatomy 1 English 10 French 3 (2) (4) Mathematics 10 Mech. Engineering 20 Mech. Engineering 22 (2) Gymnasium (Soph.) (2)	Civil Engineering 7 Civil Engineering 27 Education 8 Mech. Engineering 4-7 Mech. Engineering 24	Astronomy 2 Civil Engineering 7 Comparative Anatomy 1 Drawing 5 English 10 French 3 (2) (4) Mathematics 10 Mech. Engineering 10 Mech. Engineering 22 (3) Gymnasium (Soph.) (2)	Astronomy 2 Civil Engineering 5 Civil Engineering 30 Education 11 English 6 English 10 French 3 (2) (4) Mathematics 10 Mech. Engineering 10 Mech. Engineering 24 Gymnasium (Soph.) (2)	Astronomy 2 Civil Engineering 5 Civil Engineering 30 Education 14 Mech. Engineering 4-7 Mech. Engineering 24
4.20 P. M.	Civil Engineering 5 Drawing 5 English 6 Mech. Engineering 10 Political Science 15 Gymnasium (Fresh.) (2)	Gymnasium (Fresh.) (2)	Civil Engineering 7 Civil Engineering 27 Education 8 Mech. Engineering 4-7 Mech. Engineering 24	Civil Engineering 7 Civil Engineering 27 Education 8 Mech. Engineering 10 Gymnasium (Fresh.) (2)	Civil Engineering 5 Civil Engineering 30 Education 14 Mech. Engineering 4-7 Mech. Engineering 24	Civil Engineering 5 Civil Engineering 30 Education 14 Mech. Engineering 4-7
5.20 P. M.	Social Science 7		Civil Engineering 27		Civil Engineering 30 Mech. Engineering 4-7	

[All courses not here assigned will meet as arranged with the several instructors]

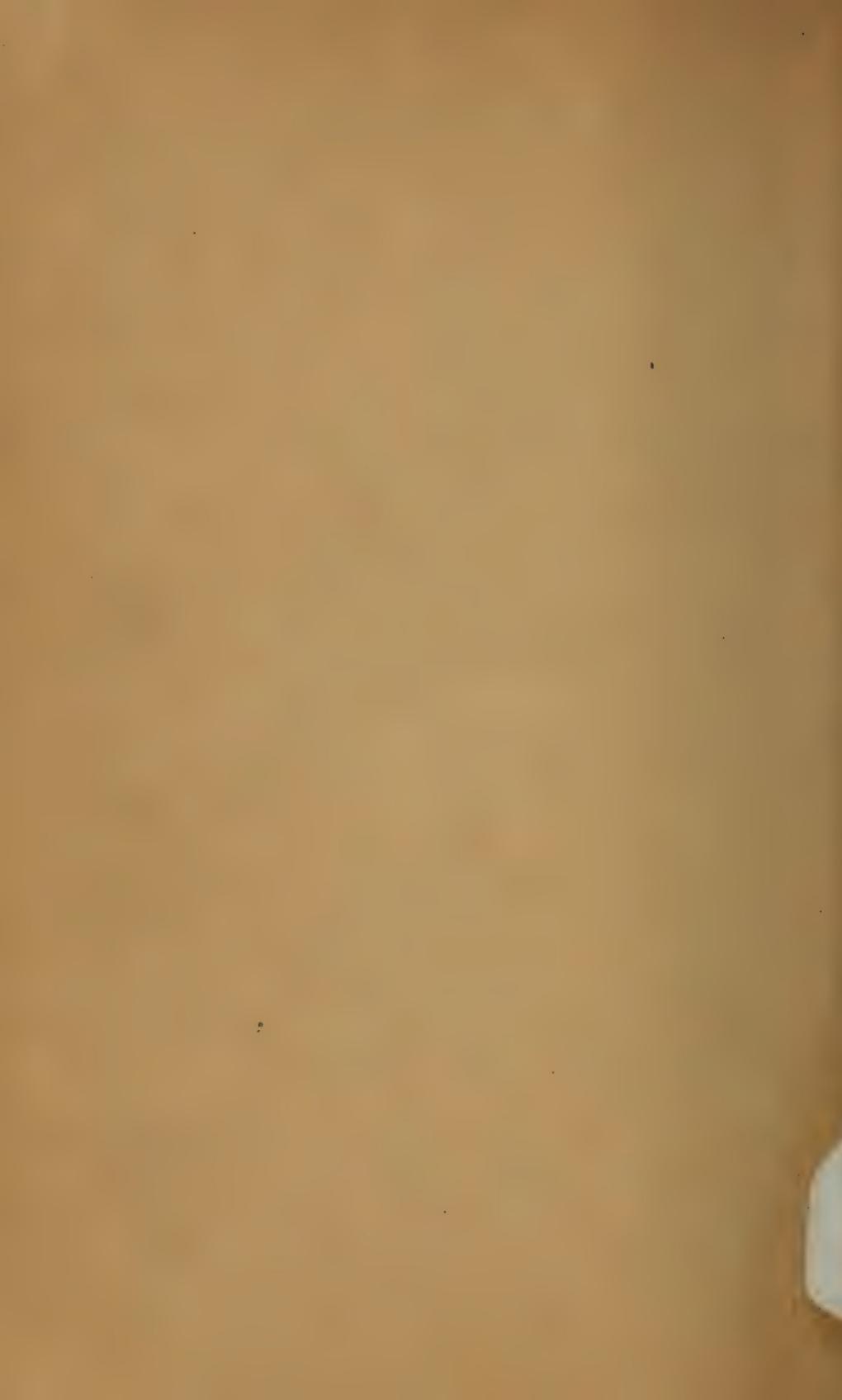
		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>8.00 A.M.</b>		Civil Engineering 17 Mathematics 19 (1) Mathematics 10 (1)	Civil Engineering 17 Mathematics 2 (1) (4) Mathematics 10 (1)	Civil Engineering 9 Mathematics 2 (1) (4) Mathematics 10 (1)	Civil Engineering 17 Mathematics 19 (1)	Civil Engineering 33 Mathematics 2 (1) (4) <del>Mathematics 10 (1)</del>	Mathematics 2 (1) (4) Mathematics 19 (1)
<b>3.20 P.M.</b>		Latin 3 (3) Mech. Engineering 8 Mech. Engineering 11	English 22 French 1 (2) (3) Geology 10 History 10 Latin 3 (3) Mech. Engineering 21	Astronomy 3 Civil Engineering 3 (1) Civil Engineering 28 Comparative Anatomy 1 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 21	English 22 French 1 (2) (3) Geology 10 History 10 Latin 3 (3) Mech. Engineering 8 Mech. Engineering 11.	Astronomy 3 Civil Engineering 15 Civil Engineering 28 Comparative Anatomy 1 Comparative Anatomy 5 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 4-7	Astronomy 3 Civil Engineering 6 Education 12 English 6 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 8
<b>4.20 P.M.</b>		Chemistry 3 (a) Civil Engineering 6 Comparative Anatomy 1 Education 15 English 6 Latin 24 Mech. Engineering 8 Mech. Engineering 11	Civil Engineering 28 Comparative Anatomy 5 Education 9 Mech. Engineering 4-7	Civil Engineering 28 Comparative Anatomy 5 Education 9 Mech. Engineering 4-7	Civil Engineering 15 Civil Engineering 28 Comparative Anatomy 5 Mech. Engineering 8 Mech. Engineering 11	Civil Engineering 6 Education 15 Mech. Engineering 4-7	Civil Engineering 15
<b>5.20 P.M.</b>		Civil Engineering 6 English 6 Mech. Engineering 8 Mech. Engineering 11 Political Science 15	Social Science 7			Mech. Engineering 4-7	

# TIME SCHEDULE, THIRD TERM

[All courses not here assigned will meet as arranged with the several instructors]

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8.00 A. M.	Civil Engineering 17 Mathematics 19 (1)	Civil Engineering 17 Mathematics 2 (1) (4) Mathematics 19 (1) Mathematics 21	Civil Engineering 9 Mathematics 2 (1) (4) Mathematics 19 (1) Mathematics 21	Civil Engineering 17 Mathematics 19 (1)	Civil Engineering 33 Mathematics 2 (1) (4) Mathematics 19 (1) Mathematics 21	Mathematics 2 (1) (4) Mathematics 19 (1)
9.20 A. M.	Chemistry 12 Civil Engineering 18 Drawing 1 Electrical Engineering 3 German 1 (3) German 11 Mathematics 16 Mathematics 19 (2) Philosophy 1 Philosophy 8	Civil Engineering 15 Civil Engineering 18 Drawing 1 Electrical Engineering 9 French 1 (1) German 1 (1) (2) Mathematics 2 (2) (3) (5) Mathematics 19 (2) Mech. Engineering 21 Philosophy 11	Civil Engineering 31 Drawing 1 French 1 (1) German 1 (1) (2) Mathematics 2 (2) (3) (5) Mathematics 19 (2) Mech. Engineering 21 Philosophy 11	Chemistry 12 Civil Engineering 18 Drawing 1 Electrical Engineering 3 German 1 (3) German 11 Mathematics 16 Mathematics 19 (2) Philosophy 1 Philosophy 8	Chemistry 12 Civil Engineering 31 Drawing 1 Electrical Engineering 9 German 1 (3) German 11 Mathematics 16 Mathematics 19 (2) Philosophy 1 Philosophy 8	Drawing 1 Electrical Engineering 9 French 1 (1) German 1 (1) (2) Mathematics 2 (2) (3) (5) Mathematics 19 (2) Mech. Engineering 21 Philosophy 11
10.20 A. M.	Art 3 Astronomy 9 Biblical Literature 14 Chemistry 3 (1) Chemistry 9 Civil Engineering 13 Comparative Anatomy 2 Drawing 1 Drawing 3 Drawing 8 Electrical Engineering 13 English 2 English 3 English 4 Latin 9 Latin 13 Mathematics 19 (3) Physics 3 Political Science 5 Spanish 43	Chemistry 3 (2) Chemistry 9 Civil Engineering 15 Comparative Anatomy 2 Drawing 1 Drawing 3 Drawing 8 Greek 3 (1) Italian 25 Latin 9 Mathematics 19 (3) Physics 3 Political Economy 2 Political Economy 1 (1) Spanish 40	Art 3 Astronomy 9 Biblical Literature 14 Chemistry 3 (e) Chemistry 9 Civil Engineering 13 Drawing 1 Drawing 3 Drawing 8 English 2 English 3 English 4 English 9 Greek 6 Italian 34 Mathematics 19 (3) Physics 3 Political Science 5 Spanish 43	Art 3 Astronomy 9 Biblical Literature 14 Chemistry 3 (1) Chemistry 9 Civil Engineering 13 Drawing 1 Drawing 3 Drawing 8 English 2 English 3 English 4 English 9 Greek 6 Italian 34 Mathematics 19 (3) Mech. Engineering 14 Mech. Engineering 15 Physics 3 Political Science 5 Spanish 43	Chemistry 3 (2) Chemistry 9 Civil Engineering 3 (2) Comparative Anatomy 2 Drawing 1 Education 18 English 16 French 25 German 6 German 2 (2) Greek 3 (1) Italian 28 Latin 9 Mathematics 19 (3) Physics 6 Political Economy 2 Political Economy 1 (1) Spanish 40	Chemistry 6 (2) Chemistry 9 Comparative Anatomy 2 Drawing 1 Education 18 English 16 French 25 German 6 German 2 (2) Greek 3 (1) Italian 28 Latin 9 Mathematics 19 (3) Physics 6 Political Economy 2 Political Economy 1 (1) Spanish 40
11.20 A. M.	Biblical Literature 1 Botany 1 Chemistry 6 Chemistry 20 Civil Engineering 19 Comparative Anatomy 8 Education 6 Electrical Engineering 6 English 1 (1) (2) English 19 French 7 French 13 German 1 (4) German 7 German 7 Italian 37 Greek 35 Mech. Engineering 14 Mech. Engineering 15 Mechanics 1 Political Economy 5 Political Economy 1 (2) Social Science 2	Biblical Literature 1 Botany 1 Chemistry 6 Chemistry 20 Civil Engineering 19 Comparative Anatomy 8 Education 6 Education 6 English 1 (1) (2) (3) English 19 French 7 French 13 German 1 (4) German 7 German 8 Italian 37 Greek 35 Mech. Engineering 14 Mech. Engineering 15 Mechanics 1 Political Economy 5 Political Economy 1 (2) Social Science 2	Chemistry 3 (3) Chemistry 6 Civil Engineering 15 Comparative Anatomy 8 Drawing 1 English 20 French 4 (1) (3) (5) German 5 (2) German 2 (1) Greek 12 History 21 Latin 33 Mathematics 5 Mech. Engineering 18 Mech. Engineering 18 Mechanics 1 Political Economy 8 Social Science 3	Biblical Literature 1 Botany 1 Chemistry 6 Chemistry 20 Civil Engineering 19 Comparative Anatomy 8 Education 6 Education 6 English 1 (1) (2) (3) English 19 French 7 French 13 German 1 (4) German 7 German 8 Italian 37 Mathematics 5 Mech. Engineering 14 Mech. Engineering 15 Mechanics 1 Political Economy 5 Political Economy 1 (2) Social Science 2	Chemistry 6 (1) Civil Engineering 3 (2) Comparative Anatomy 6 Drawing 1 English 20 French 4 (1) (3) (5) German 5 (2) German 2 (1) Greek 12 History 21 Latin 33 Mathematics 5 Mech. Engineering 18 Philosophy 2 Philosophy 12 Political Economy 8 Social Science 3	Chemistry 3 (3) Chemistry 6 Education 18 Electrical Engineering 6 English 20 French 4 (1) (3) (5) German 5 (2) German 2 (1) Greek 12 History 21 Latin 33 Mathematics 5 Mech. Engineering 18 Philosophy 2 Philosophy 12 Political Economy 8 Social Science 3
12.20 P. M.	Botany 2 Education 3 English 1 (4) (5) (6) English 13 Geology 3 History 6 Latin 6 Mathematics 5 Mech. Engineering 14 Mech. Engineering 15 Mechanics 1 Political Economy 5 Political Economy 1 (2) Social Science 2	Art 6 English 11 English 15 German 1 (5) German 14 Greek 6 History 7 Latin 3 (2) Mathematics 8 Mech. Engineering 8 Mech. Engineering 11 Political Economy 12	Botany 2 Education 3 English 1 (4) (5) (6) English 13 Geology 3 History 6 Latin 6 Mathematics 5 Mech. Engineering 18 Mech. Engineering 18 Mechanics 1 Political Science 2	Art 6 English 11 English 15 German 1 (5) German 14 Greek 6 History 7 Latin 3 (2) Mathematics 8 Mech. Engineering 14 Mech. Engineering 15 Political Economy 12	Botany 2 Education 3 English 1 (4) (5) (6) English 13 Geology 3 History 6 Latin 6 Mathematics 5 Mech. Engineering 18 Mech. Engineering 18 Mechanics 1 Political Science 2	Art 6 English 11 English 15 German 1 (5) German 14 Greek 6 History 7 Latin 3 (2) Mathematics 5 Mech. Engineering 18 Political Science 2
2.20 P. M.	Astronomy 6 Biblical Literature 12 Civil Engineering 6 Comparative Anatomy 1 Drawing 10 French 1 (2) (3) Geology 10 History 10 Latin 3 (3) Mech. Engineering 8 Mech. Engineering 11	Art 10 Art 11 Astrology 6 Biblical Literature 12 Chemistry 3 (b) Civil Engineering 3 (1) Civil Engineering 28 Comparative Anatomy 1 English 22 French 1 (2) (3) Geology 10 History 10 Latin 3 (3) Mech. Engineering 21	Comparative Anatomy 5 Mech. Engineering 4-7	Art 10 Art 11 Astrology 6 Biblical Literature 12 Chemistry 3 (c) Civil Engineering 28 Comparative Anatomy 1 Comparative Anatomy 5	Art 10 Art 11 Astrology 6 Biblical Literature 12 Chemistry 3 (d) Civil Engineering 6 English 6 Greek 20 Latin 15 Mech. Engineering 4-7	Art 6 English 11 English 15 German 1 (5) German 14 Greek 3 (2) History 7 Latin 3 (2) Mathematics 8 Mech. Engineering 18 Political Economy 12
3.20 P. M.	Chemistry 3 (a) Civil Engineering 6 Comparative Anatomy 1 Education 15 English 6 Latin 24 Mech. Engineering 8 Mech. Engineering 11	Astronomy 3 Civil Engineering 3 (1) Civil Engineering 28 Comparative Anatomy 1 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 21	Comparative Anatomy 5 Education 9 Mech. Engineering 4-7	Astronomy 3 Civil Engineering 6 Civil Engineering 28 Comparative Anatomy 1 Comparative Anatomy 5 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 8 Mech. Engineering 11	Astronomy 3 Civil Engineering 6 Civil Engineering 28 Comparative Anatomy 5 Comparative Anatomy 5 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 8 Mech. Engineering 11	Astronomy 3 Civil Engineering 6 Civil Engineering 6 Education 12 English 10 French 4 (2) (4) Mathematics 11 Mech. Engineering 4-7
4.20 P. M.	Civil Engineering 6 English 6 Mech. Engineering 8 Mech. Engineering 11 Political Science 15	Civil Engineering 28	Comparative Anatomy 5 Education 9 Mech. Engineering 4-7	Civil Engineering 15 Civil Engineering 28 Comparative Anatomy 5 Mech. Engineering 8 Mech. Engineering 11	Civil Engineering 6 Education 15 Mech. Engineering 4-7	Civil Engineering 6 Education 15 Mech. Engineering 4-7
5.20 P. M.	Social Science 7			Civil Engineering 15		Mech. Engineering 4-7















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